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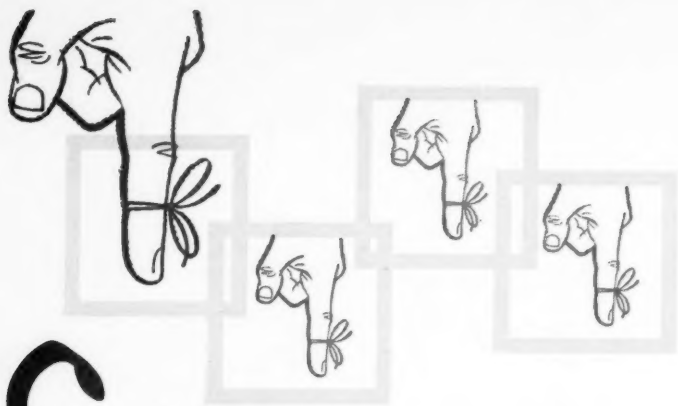
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**JULY
1955**



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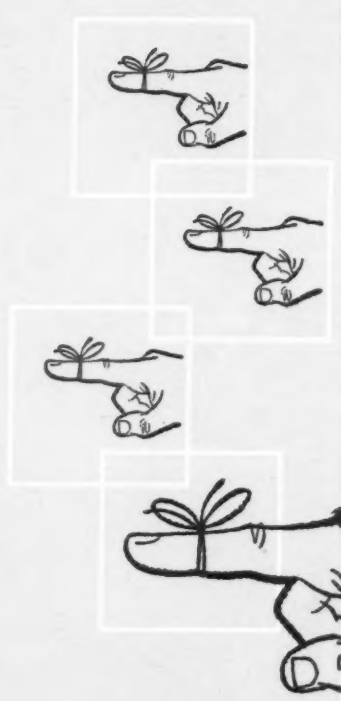
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your exterior paints

with Dutch Boy® "45X"

(Basic Silicate White Lead)

TAKE IT from leading makers of exterior paints: for *uniform* performance, you need lead.

And take it from Sayville, National Lead's Experimental Test Station, "Dutch Boy" Basic Silicate White Lead "45X" assures uniform performance. No matter how much exposure conditions — or painting practices — vary!

Think about your white House Paints, for example.

With "45X" — Sayville tests show — you definitely improve self-cleaning. Yet, you preserve film integrity!

In tinted House Paints, you step up film durability with "45X". Also resistance to color changes! In Primers, you step up adhesion.

And so it goes!

Everytime you put "45X" into exterior paints, you improve one

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This minimizes complaints. Saves you time. And money! You, you alone, know what it costs to run down complaints yearly. And the complaints you *don't* hear about! Even you don't know what they cost — in repeat business and good-will.

**Fewer complaints —
fewer pounds of lead, too!**

That's because the reactive portion of each "45X" pigment particle is concentrated at the surface. This makes proportionately larger amounts of lead *available*.

Fewer complaints, fewer pounds of lead! You just can't lose, putting "45X" in your exterior paints!

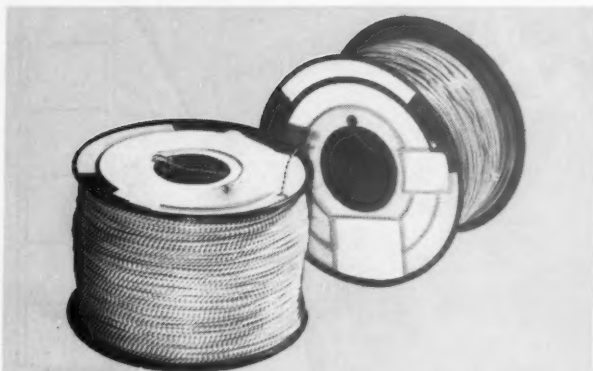


National Lead Company: New York 6; Atlanta; Buffalo 3; Chicago 80; Cincinnati 3; Cleveland 13; Dallas 2; Philadelphia 25; Pittsburgh 12; St. Louis 1; San Francisco 10; Boston 6 (National Lead Co. of Mass.). In Canada: Canadian Titanium Pigments Ltd., 630 Dorchester St., W., Montreal.

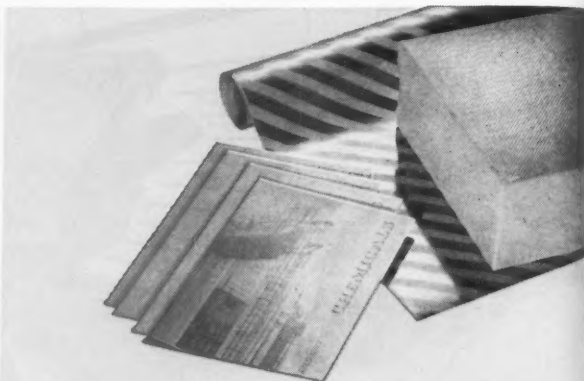


CELLULOSE ACETATE CELLULOSE ACETATE BUTYRATE

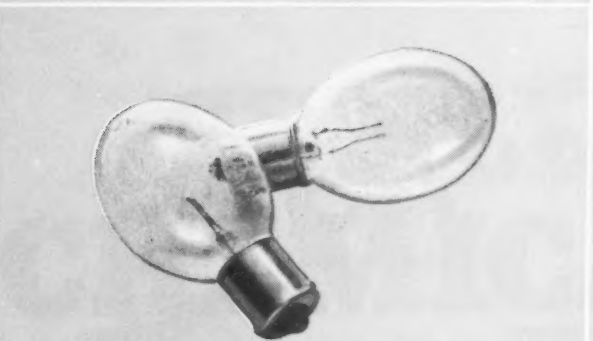
versatile film formers by Eastman



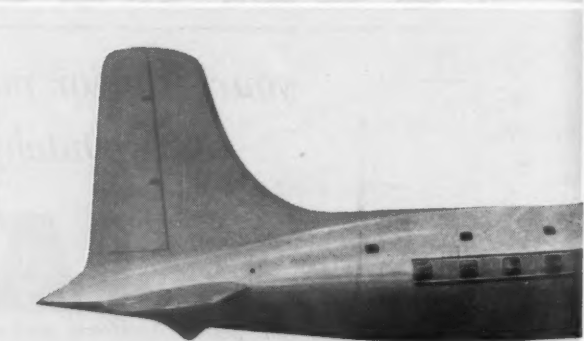
CABLE LACQUERS—Among the oldest protective coating applications for Eastman cellulose acetate is wire and cable lacquer. Such lacquers provide an excellent combination of moisture resistance, dielectric strength and abrasion resistance. Lacquers made with Eastman cellulose acetate butyrate are also used in this field, particularly for the protection of ignition cables and other specialized wiring.



COATINGS FOR PAPER—Decorative and protective paper coatings made with Eastman cellulose acetate butyrate offer outstanding gloss. They are water white and do not discolor on aging. They retain high strength and flexibility at low temperatures, are heat sealable and are easy to apply either as a solvent solution or as a hot melt with existing commercial equipment. Mileage per gallon is high.



FLASHBULB COATINGS—When a flashbulb flashes, the sudden, intense heat sometimes fractures the glass envelope. Seeking a way to confine the broken pieces, flashbulb manufacturers turned to Eastman cellulose acetate. Applied in the form of a lacquer to both the inside and the outside of the fragile glass bulb, the tough, flexible acetate film provides an invisible jacket that serves to imprison the fragments of glass.



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PAINT and VARNISH *Production*

(REG. U.S. PATENT OFFICE)

Formerly PAINT and VARNISH PRODUCTION MANAGER
(Established in 1910 as The Paint and Varnish Record)

NEXT ISSUE

A new concept in surface coating technology—the preparation of varnishes without cooking by the “cold-mix” technique will be featured in the August number. Formulation methods and various applications of this technique will be discussed thoroughly in this article.

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JULY, 1955

NO. 8

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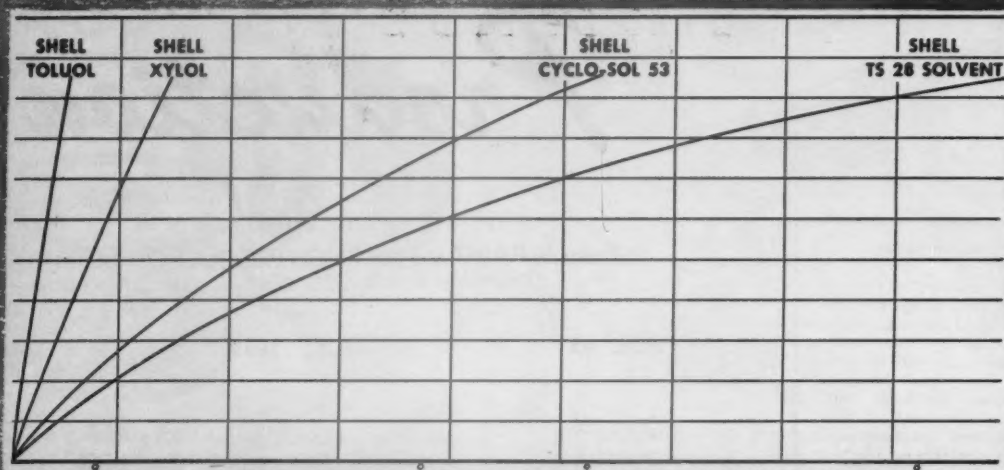
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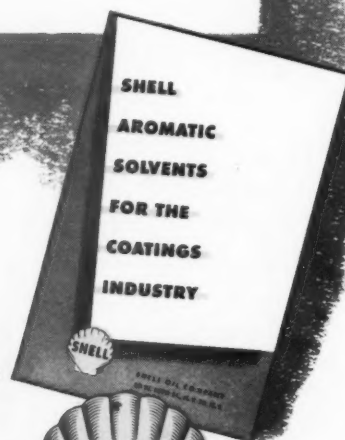
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Editorial Comment

July, 1955

Partnership in Ideas

ONE of the marvels of American industry is its industrial "know-how." Its significance was clearly demonstrated in the outcome of World War II, and today it is the motivating force in maintaining our high standard of living.

America has always been famous for its ingenuity. In the past, this ingenuity, for the most part, emanated from executives, engineers, and scientists. Today, American industry is also cashing in on the ideas and suggestions offered by its workers, who in turn are rewarded with cash remuneration.

It was not until World War II that the suggestion system, as we know it today, was instituted in our plants and factories, and on the whole, company suggestion systems are becoming more and more a part of corporate business life.

The idea behind a suggestion plan is simple. Since each worker spends most of his working hours performing one or two functions, he is in the position to understand the details of his job better than anybody else, including the plant manager, engineer, foreman, or supervisor. He looks at his job from a different point of view, and as a result, will come up with an idea that no one else would think of.

However, the success of any company suggestion system is dependent on setting up a committee which is responsible for receiving suggestions and seeing that they are properly considered. In a small plant this may be handled by one man who devotes part of his time to suggestion system work.

A properly administered suggestion system not only will pay off financially but can materially improve employer-employee relations. In essence, it is a means, on the part of management, to invite his hired-help to participate in improving upon the various phases of the firm's

business or industrial operations. Actually, a suggestion system is a partnership of ideas between management and worker, and most important, it offers the worker the opportunity to gain recognition for his ingenuity—so vital to our industrial development.

Polymer Chemists Needed

IN this day and age, specialization has taken hold in practically all fields of endeavor. This is particularly true of the chemical field where research specialists have played an important part in the fulfillment of many processes and products.

A particular segment of the chemical industry in which there is need for more specialists is in high polymer chemistry. In order to meet domestic and foreign requirements for synthetic rubber, plastics, fibres, films, coatings, etc. basic research in this phase of chemistry must be stepped-up.

For example, our synthetic rubber industry presently finds itself in such a position, according to John E. Caskey, vice president and general manager of Naugatuck Chemical Div., United States Rubber Company. He said—

"America's synthetic rubber industry in redoubling its research effort since changing from Government to free hands is faced with a shortage of chemists trained in polymer science.

"The need for better synthetic rubber coupled with world needs which are expected to climb to a million long tons of synthetic rubber by the end of next year is forcing us further into the field of rubber polymers."

From this observation it is apparent that our knowledge of polymers must be expanded to gain a better insight of molecular structure in order that materials with new and improved properties may be synthesized.



weather proof that
Titanox research
helps keep your white
paints *white*



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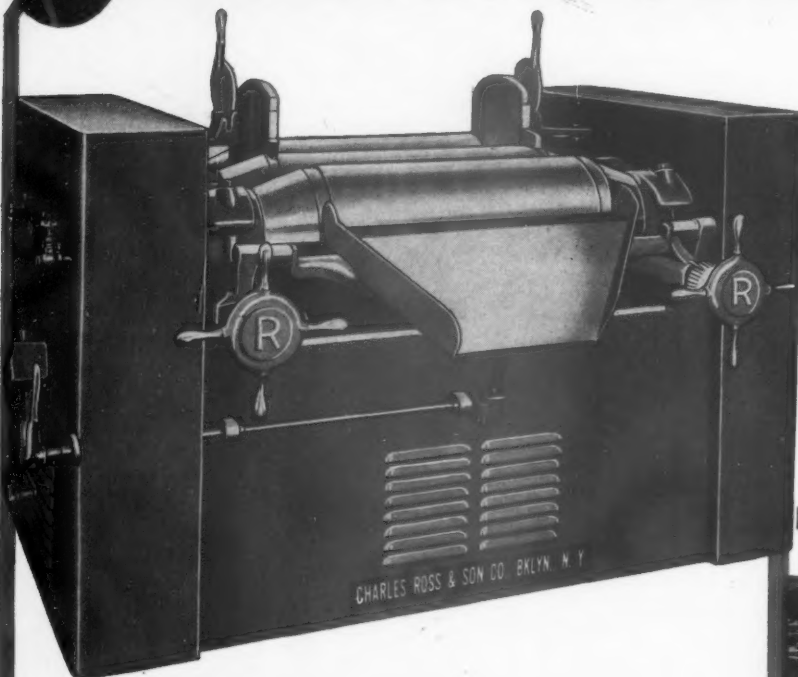
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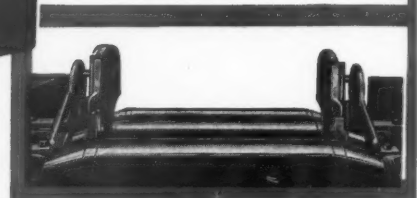
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Guess I'll take a snooze"



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more sell . . .
in washable paint

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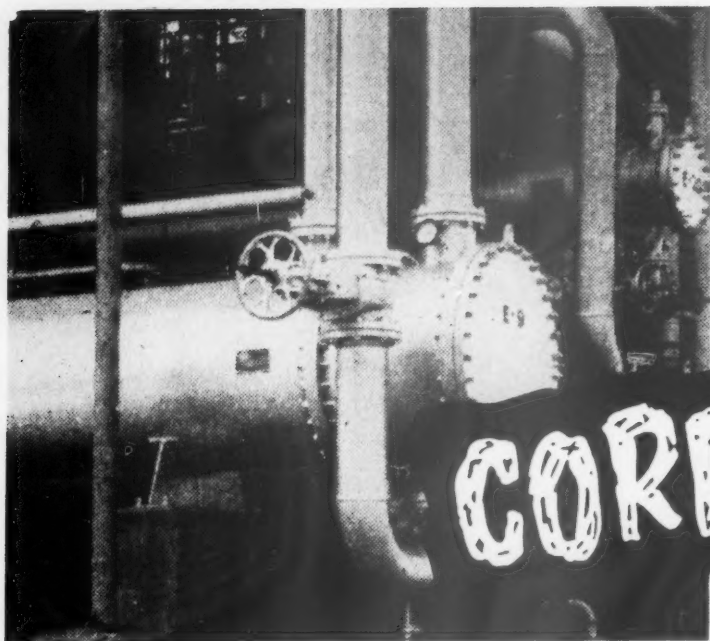
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NUVIS-1

Patent Pending

imparts true body without essentially modifying the flow properties of the paint

to prevent pigment settling in gloss and semi-gloss enamels

to control penetration in gloss and semi-gloss enamels and in clear varnish

to increase viscosity in gloss and semi-gloss enamels, clear and flat varnishes, industrial finishes

to control flow and leveling in industrial finishes

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improves brushability, sag-resistance, anti-settling and related properties

to eliminate sagging, prevent pigment settling, control flow and leveling in gloss, semi-gloss and flat alkyd enamels, flat wall and oil base paints, flat varnishes, industrial finishes

to improve brushing, control penetration, impart thixotropic body in gloss, semi-gloss and flat alkyd enamels, flat wall and oil base paints, flat varnishes

to increase viscosity in flat alkyd enamels, flat wall and oil base paints

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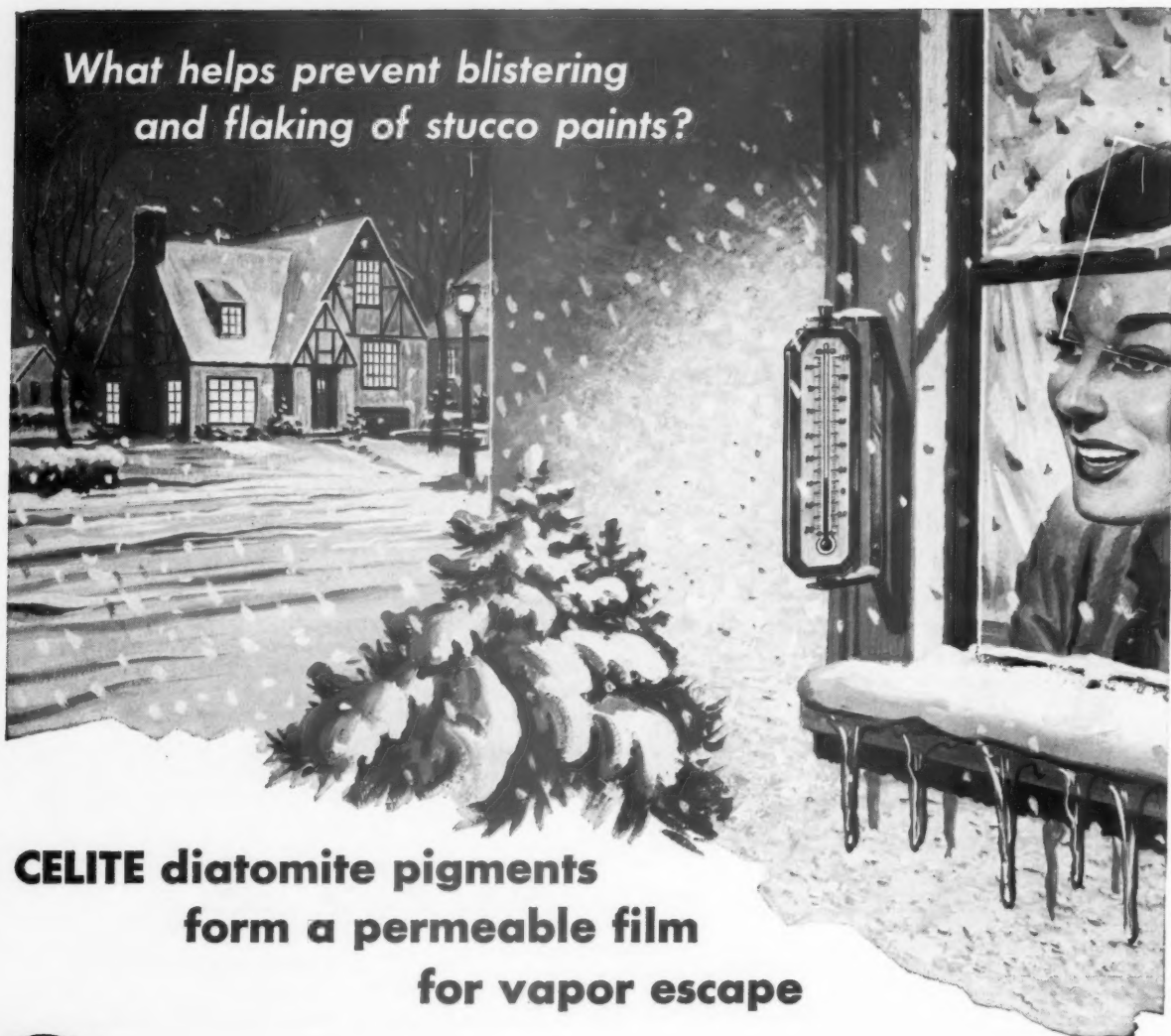
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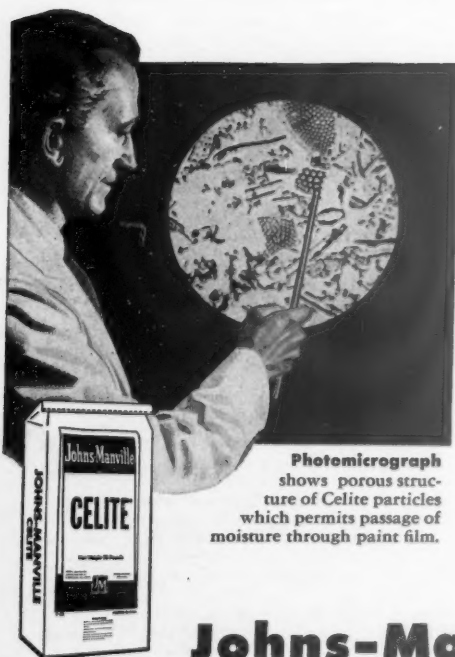
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*What helps prevent blistering
and flaking of stucco paints?*



**CELITE diatomite pigments
form a permeable film
for vapor escape**



Photomicrograph
shows porous structure
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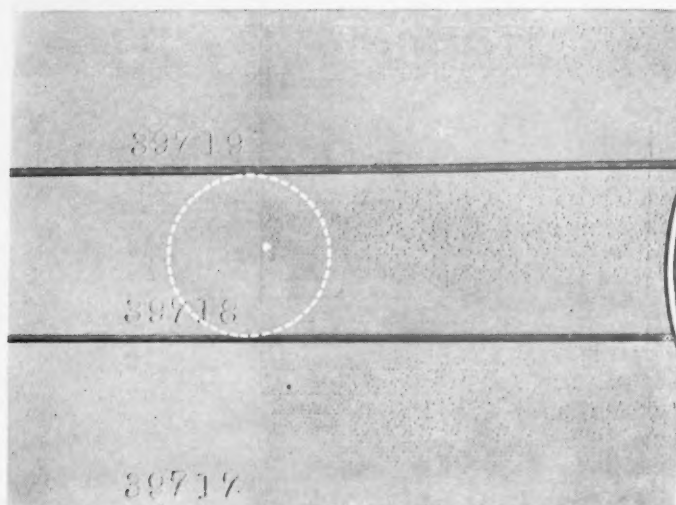
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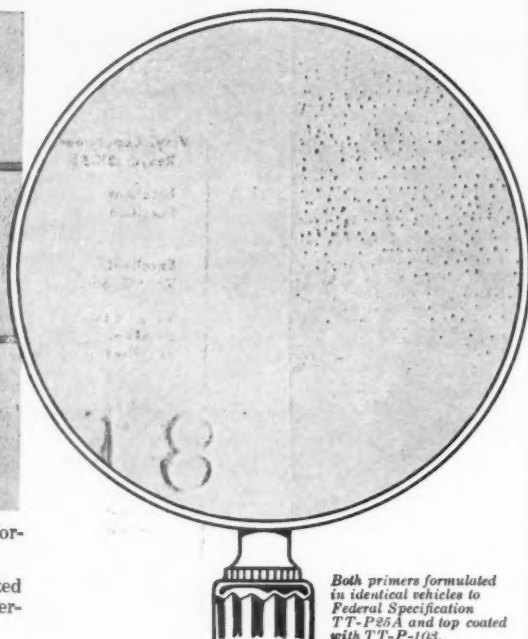
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Color Uniformity a) on Touchup and Lapping b) Self-priming Properties	Excellent Very Good	Fair to Poor Very Good	Fair to Poor Fair	Excellent Very Good
Alkali Resistance Grease & Oil Resistance Film Toughness and Integrity	Very Good Excellent Excellent	Poor Fair to Poor Excellent	Very Good Excellent Fair to Good	Very Good Excellent to Good Fair to Good
Aging of Film a) Nonyellowing b) Retention of Flexibility	Excellent Excellent	Fair to Poor Fair to Poor	Fair to Poor Fair to Poor	Excellent Excellent to Good
Soil and Stain Removal	Satisfactory	Satisfactory	Satisfactory	Satisfactory
Can Stability a) Settling b) Viscosity Stability	Excellent Excellent	Good-Slight Excellent	Excellent Fair-Some Change	Excellent Excellent
Versatility of Use and Formulation Brushing Clean Up After Painting	Excellent Very Good Excellent	Excellent Good Fair to Poor	Poor Excellent Excellent	Excellent to Good Very Good Excellent
Repaintability of 2nd Coat a) Speed of Dry b) Effect on 1st Coat	Rapid None	Slow None	Rapid Can Resoften and Tear	Rapid None
Pigment Binding Power	High	High	Low	Medium

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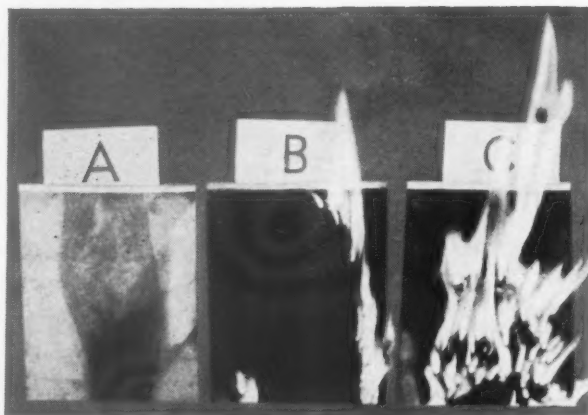
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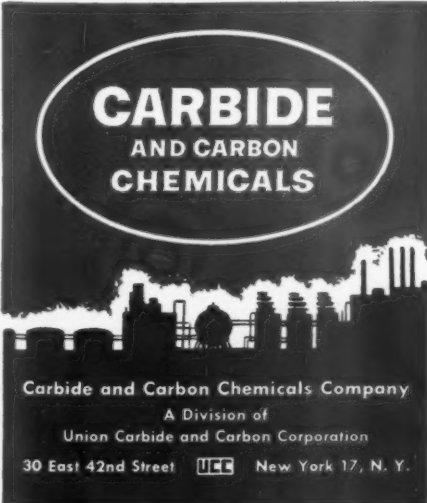


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EFFECT OF KAOLINITE PARTICLE SIZE AND PVC ON IMPORTANT PROPERTIES OF VARIOUS PAINT SYSTEMS

PART II

By

W. Robert Price, Jr.*

Part II concludes this series of articles describing the effect of the particle size distribution and pigment volume concentration of Kaolinite extender pigments on some important properties of various paint systems. This particular part is concerned with polyvinyl acetate and acrylic emulsion paints. Part I, which appeared in the June issue, covered butadiene-styrene copolymer latex paints and semi-gloss oleoresinous enamels.

POLYVINYL ACETATE EMULSION PAINTS

THE PROPER use of extenders is especially important when formulating with polyvinyl acetate emulsions due to the comparatively high specific gravity of the polymer. It is obvious that formulation to make paints based on these systems competitive in cost is highly desirable—especially in cases where no great advantage or improvement in quality is readily apparent from their use.

One of the most obvious means of reducing cost is through the proper use of extender pigments.

Kaolinite has proven to be especially useful in polyvinyl acetate emulsion systems. Again, however, it is important to realize that the properties obtained will depend on the particle size of the Kaolinite used.

The investigation to determine the effect of particle size on these systems was carried out using the following commercially produced Kaolinites:

GRADE	% FINER THAN 2 MICRONS
Hydrite-PD-10	95
Hydrite-PD-121	60
Hydrite-Flat	18

Complete particle size distribution curves are shown in Figure 6.

Each of these grades was made up in each of the formulas shown in Figure 16, using four different, internally plasticized polyvinyl acetate emulsions. This was done to determine whether the differences

which exist between emulsions have an effect on Kaolinite behaviour.

Notice in these formulas, that as PVC was increased, the amount of prime hiding pigment was decreased.

MATERIAL	Pounds per 100 gallons of:		
	25% PVC	35% PVC	45% PVC
Titanium dioxide (rutile, non-chalking)	250	200	150
Kaolinite	30	120	180
Tetrasodium pyrophosphate	0.8	0.9	1.0
Lecithin (water dispersible)	2.8	3.2	3.3
Methocel - 4000 cps. (2% Solids)	187	150	120
PVAc Emulsion (55% Solids)	455	365	275
Water	149	222	251
	1075	1061	980

% Solids: 50

Figure 16. Polyvinyl acetate emulsion paint test formulas.

An effort was again made to keep the test formulas as simple as possible yet still representative of general commercial formulations. Since all of the emulsions evaluated were internally plasticized, they were all formulated in exactly the same way. No additional film-forming aids of any kind were incorporated. In this way, formulas of minimum cost and maximum simplicity were obtained.

Procedure

The following procedure was used in the preparation of the above paints:

1. TSPP and lecithin were dissolved in all of the water.
2. Pigment was wet out in the above on a propellor mixer.
3. The pigment slurry was given one pass through a Morehouse Mill at .001" clearance using SR # 254 stones.
4. The PVAc emulsion was added to the pigment grind on a propellor mixer at a speed slow enough so that no air was incorporated into the paint.

*Mr. Price is Product Development Engineer of the Georgia Kaolin Company in Elizabeth, N. J.

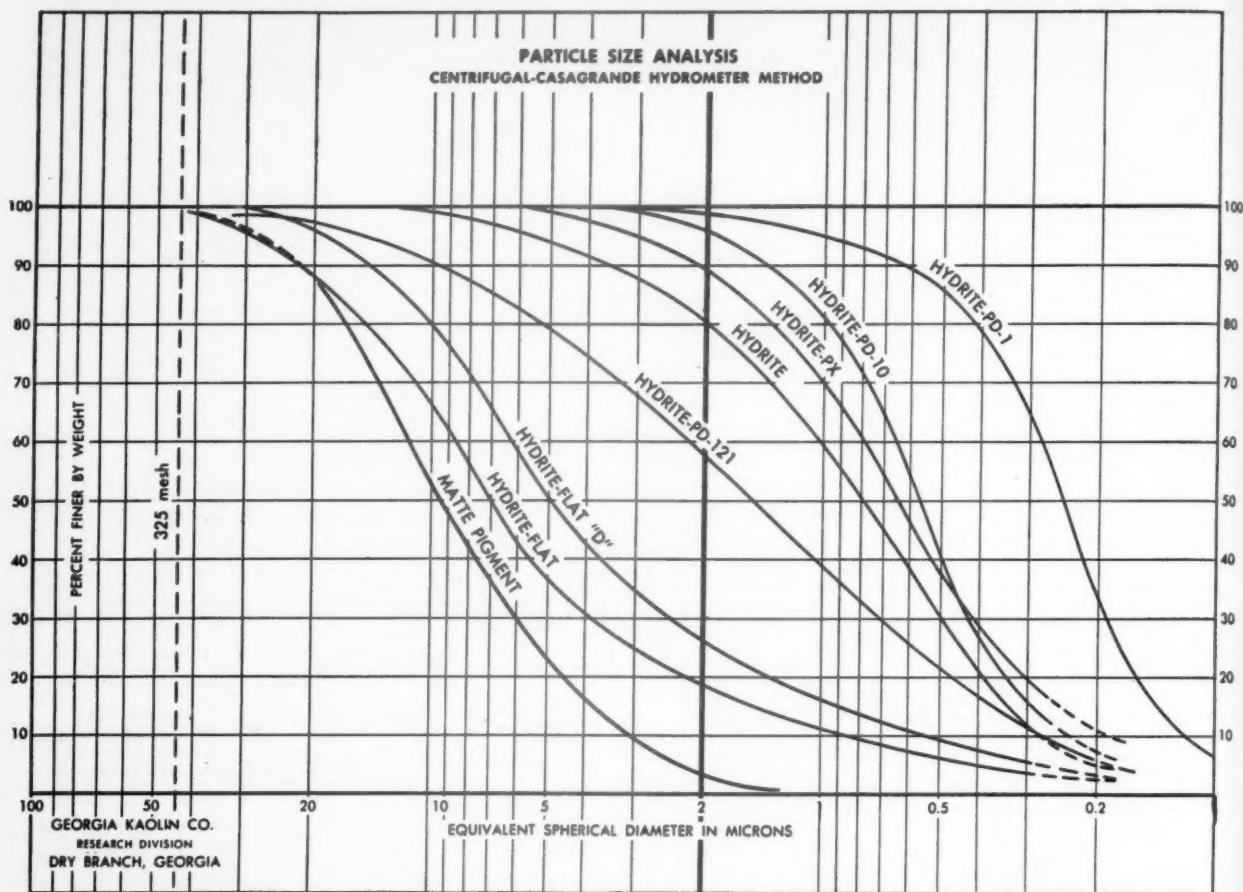


Figure 6. Particle size distribution curves of all Kaolinite grades used in the preparation of the data presented in this paper.

5. The 2% "Methocel" solution was blended in at a speed slow enough so that no air was incorporated into the paint.

This procedure has been found to produce paints of a high quality with a minimum of trouble from entrained air.

Test Methods

TT-P-141b except as noted.

Results

60° Gloss

Figure 17 shows the effect of Kaolinite particle size on 60° gloss.

In the case of butadiene-styrene systems it was shown that Kaolinite particle size and pigment volume concentration had an important effect on gloss. The same is true in polyvinyl acetate emulsion systems. However, the extent to which it is true depends on the individual emulsion used.

The curves obtained on the paints made from Emulsions A and B illustrate the extremes found in the four emulsions. Curves for paints made from the other two emulsions lie in between those shown.

Emulsions A and B both produced paints of comparatively high overall quality.

Previous experience has shown that the effect of Kaolinite particle size on gloss is much more pronounced in well dispersed systems than in partially

dispersed or flocculated systems. Because of the nature of their charge, pigment particles in well-dispersed systems tend to repel each other and exist in the system as discrete units which are free to be deposited in films in a more or less oriented manner. In the case of fine particle size Kaolinites, this is the characteristic fish-scale arrangement mentioned earlier.

In flocculated systems, however, the pigment particles attract each other and are present as clumps, or aggregates, which are deposited in films in a more or less random manner.

As a result, gloss in flocculated systems is affected not by the size of the individual particle, but by the size of the aggregates. Differences in gloss due to differences in pigment particle size are minimized.

In this respect it would appear that paints made from Emulsion A exhibit the characteristics of dispersed systems and paints made from Emulsion B exhibit the characteristics of flocculated or partially dispersed systems. However, several other factors should be considered.

Differences in the gloss developing powers of the emulsions themselves could have been partly responsible for the different gloss levels obtained. So also could be the fact that certain types of dispersing agents can have a flocculating effect on the resin particles due to a reaction with components of the stabilization system.

GLOSS vs. PARTICLE SIZE DISTRIBUTION

(POLYVINYL ACETATE EMULSION FORMULAS)

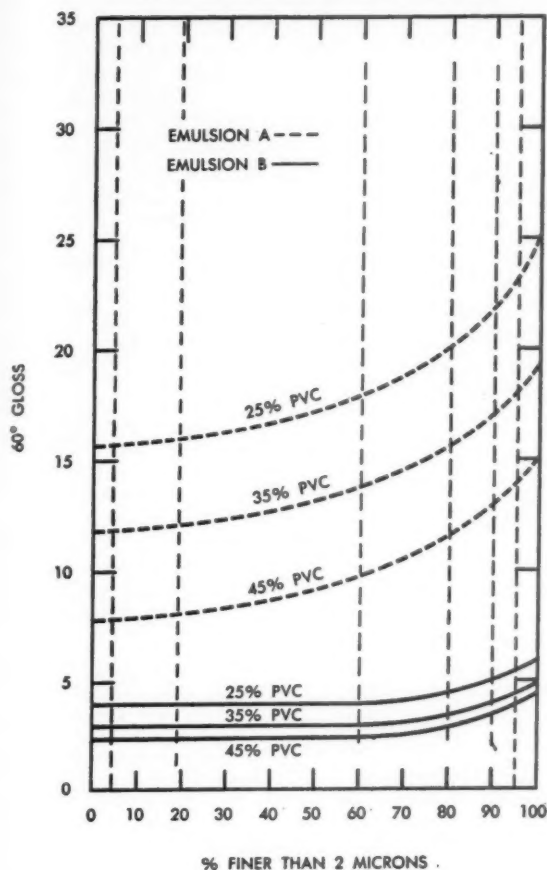


Figure 17. Effect of Kaolinite particle size on the 60° gloss of polyvinyl acetate emulsion test formulas.

However, assuming good film formation,** these factors would have caused a fixed difference in gloss which would have acted in addition to and independent of the effects of Kaolinite particle size. The gloss curves for paints made from Emulsions A and B would have been parallel and the effect of PVC on gloss would have been in the same order of magnitude for each.

Since such was not the case, it may be assumed that these factors do not completely account for the differences observed.

It is conceivable, however, that some of the differences observed could have stemmed from differences in basic resin properties independent of differences in emulsion properties.

Whatever the reason for these differences, the important thing is that they do exist, and can have an important effect on the choice of extender.

Contrast Ratio

Figure 18 shows the effect of Kaolinite particle

size distribution on the dry hiding power of the systems under study.

The curves shown are typical of those obtained regardless of the emulsion used.

It is evident from the slope of these curves that Kaolinite particle size has an especially pronounced effect on the dry hiding power of these systems. This effect is so marked that, at the same PVC level, dry hide may be increased without increasing the amount of prime white pigment, or dry hide may be held constant and the amount of prime white pigment may be decreased.

For example, the dry hide of the paint made up at 35% PVC with Hydrite-Flat was increased from 89.5% to 93.4% by substituting Hydrite-PD-10. The lower contrast ratio value could obviously have been main-

CONTRAST RATIO vs. PARTICLE SIZE DISTRIBUTION

(POLYVINYL ACETATE EMULSION FORMULAS)

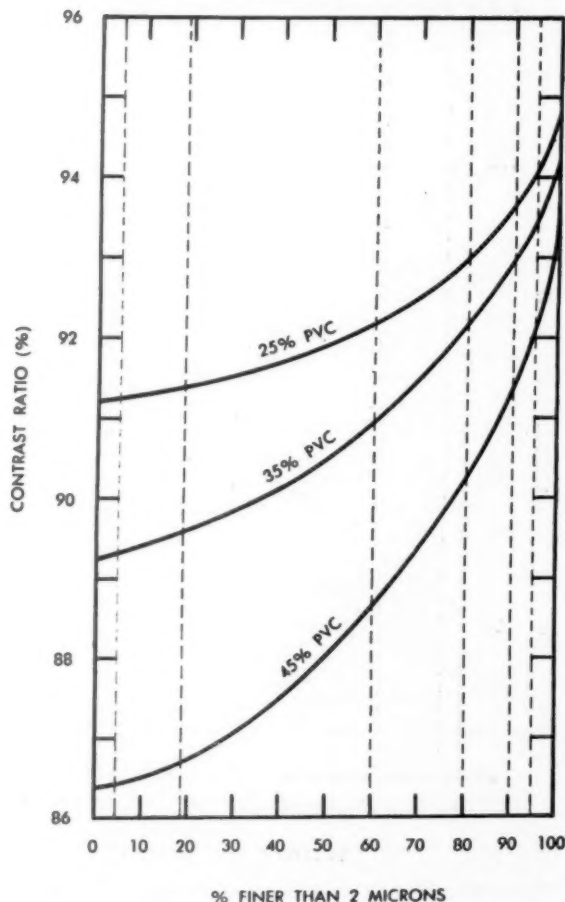


Figure 18. Effect of Kaolinite particle size on the contrast ratio of polyvinyl acetate emulsion test formulas.

tained by reducing the amount of prime white hiding pigment in the formula.

Contrast ratio decreased as PVC was increased. This was due to the substantial reductions in titanium dioxide shown in Figure 16.

**Good film formation properties may be assumed since films formed both at room temperature and at 40° F. from paints which had aged 6 weeks showed excellent wet abrasion resistance.

A study of Figures 16 and 18 shows that Hydrite, at 35% PVC, may be used to obtain the same dry hide as was obtained at 25% PVC with Hydrite-PD-121 with a savings in titanium dioxide of 50 pounds per 100 gallons. Hydrite-PX at 45% PVC will give the same dry hide as Hydrite-Flat at 25% PVC with a savings in titanium dioxide of 100 pounds per 100 gallons.

Other examples of ways that costs may be reduced or dry hide may be improved may be seen from a study of this data.

Viscosity

The effect of Kaolinite particle size on paint viscosity was generally the same in all the emulsions evaluated. Figure 19 graphically illustrates these results.

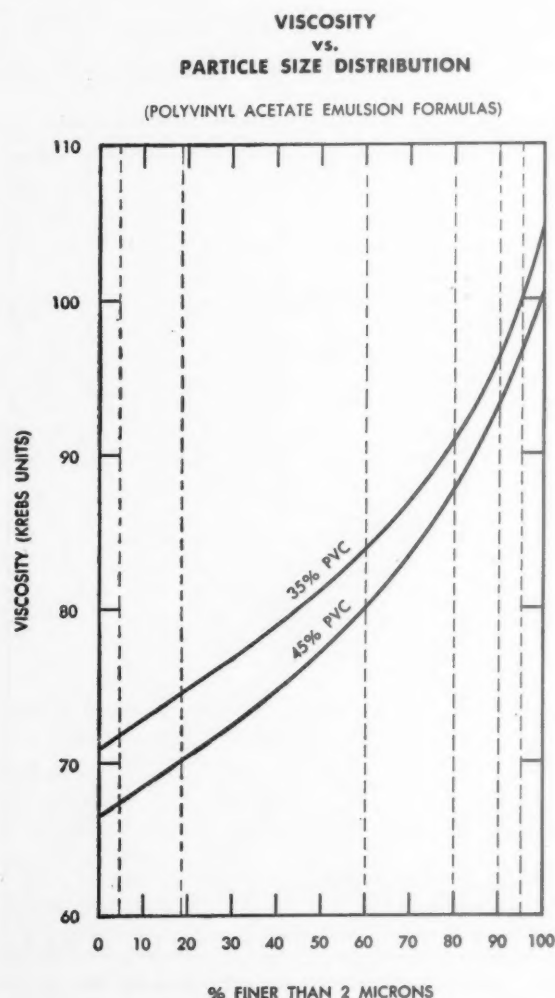


Figure 19. Effect of Kaolinite particle size on the viscosity of polyvinyl acetate emulsion test formulas.

No correlation was obtained between viscosity and particle size at 25% PVC. This is evidently because other variables in the system had a larger effect on viscosity than the comparatively small amount of Kaolinite (0.3 lbs. per gal.) used at this PVC level.

As mentioned earlier, the type and amount of dis-

persing agents used can have a large bearing on the effective water demand of Kaolinite and on the viscosity of the paint system.

Of considerable interest is the fact that, over a six-week period, the viscosity stability of these paints was observed to be quite good.

No definite correlation was found between particle size and viscosity stability although a very slight tendency was noticed for the paints made up with the finer particle size Kaolinites to gain more in viscosity over this period than the coarser Kaolinites. The differential was in the order of 1-2 Krebs Units and easily could be outside of the overall accuracy of the tests used.

Indications are that the viscosity stability of these systems is much more a function of the emulsion used than of Kaolinite particle size. For instance, paints made with Emulsion B gained an average of 13 K. U. over the six-week observation period, whereas those made with Emulsion C lost 1 K. U.

Kaolinite was found to impart a degree of thixotropy to these systems which aided in the formation of desirable application properties.

The use of Kaolinite particle size as an aid in controlling viscosity is again indicated.

pH

No attempt at pH adjustment was made during the production of these paints since it was desired to observe the natural effect of each Kaolinite on the pH of paints made from each emulsion.

Kaolinite particle size was not observed to have any important effect on pH, the average pH values of the paints made up with the three different particle size Kaolinites being 5.6, 5.6, and 5.5.

The emulsion used again appears to be the controlling factor as far as pH is concerned. Average pH values for the different paints under examination ranged from 6.2 for paints made from Emulsions A and B, to 4.8 for paints made from Emulsion C. (Of interest is the fact that even though Emulsions A and B had different effects on the gloss developing powers of the Kaolinites, their average pH values were the same.)

The pH stability of these systems was observed over a six-week period. Average pH drift was very slight and was controlled by the emulsion and not by Kaolinite particle size. Emulsion A lost an average of 0.1 unit for an average pH after six weeks of 6.1, whereas Emulsion D gained an average of 0.6 unit for an average pH after six weeks of 5.8.

An increase in PVC from 25% to 35% to 45% (Kaolinite increased from 30 to 120 to 180 lbs. per 100 gallons) produced a stabilizing effect on pH regardless of the particle size of the Kaolinite used. The change in pH dropped from an average gain of 0.5 unit at 25% PVC to a gain of 0.1 at 45% PVC.

Washability

Washability of these paints was measured by "Wet Abrasion Resistance", "Stain Removal", and "Burnish Resistance".

Wet Abrasion Resistance

TT-P-141b was used except:

1. 3/8" wall board, cut to 17" x 7" and primed with a polyvinyl acetate sealer tinted to a reflectance of 50% with a pre-dispersed monastral green pulp,

was used for the test surface. Primer was applied by brushing at the rate of approximately 500 sq. ft. per gal. and was allowed to dry a minimum of 24 hours before application of the paints to be tested.

2. Paints were brushed on at the rate of 500 sq. ft. per gal. and allowed to dry for 96 hours before washing.

3. A 2% solution of "DUZ" powdered soap was used as the soap solution.

4. Wet abrasion resistance was taken as the number of cycles to the appearance of a one-quarter inch diameter break in the film in the center six inches of the brush path. Test was stopped after 500 cycles if no failure had occurred.

NOTE: Paints were allowed to age for six weeks in the can before preparation of the washability panels. This was done to make sure the system had come to equilibrium. Erratic results have been obtained on paints tested 24 or 48 hours after preparation.

No correlation between Kaolinite particle fineness and wet abrasion resistance was found in this series of tests. However, wet abrasion was found to be influenced strongly by the emulsion used as shown in Figure 20.

It should be mentioned that the wet abrasion resistance of Emulsions C and D could have been improved considerably by adding film-forming aids such as Carbitol, diethylene glycol, hexylene glycol, etc.

WET ABRASION RESISTANCE			
Emulsion Tested:	Number of cycles to film failure at:*		
	25% PVC	35% PVC	45% PVC
Emulsion A	over 500	over 500	over 500
Emulsion B	over 500	over 500	over 500
Emulsion C	124	138	181
Emulsion D	147	126	233

*Average number of scrub cycles for all grades of kaolinite tested, regardless of particle size distribution.

Figure 20. Wet abrasion resistance of various emulsions at different PVC levels.

Wet abrasion resistance may be seen to remain constant, even improve very slightly, as Pigment Volume Concentration is increased. This increase is evidently due to a faster toughening of the film when larger amounts of Kaolinite are present and is more noticeable in 24, 48, or 96 hour washability tests than in tests run after the film has aged for 30 days.

It should be mentioned that adequate wet abrasion resistance is maintained only below certain limits. If the Critical Pigment Volume of the film is exceeded, wet abrasion resistance will fall off rapidly. (11).

Stain Removal

Stain removal was taken as the number of cycles to complete removal of the stain specified.

The following stains were employed:

1. Red wax crayon
2. No. 2 lead pencil
3. Lipstick (cheap, greasy)

4. Kitchen grease (bone black ground into Crisco and linseed oil)
5. Mercurochrome
6. Coffee

Stains were applied in one-inch strips perpendicular to the direction of washing, were rubbed in by hand with medium pressure, and were allowed to stand on the panels for 24 hours before washing.

No correlation could be found between stain removal and Kaolinite particle size distribution.

No substantial difference was observed between the stain-removal characteristics of the different emulsions.

A correlation was found between Pigment Volume Concentration and stain removal as shown in Figure 21.

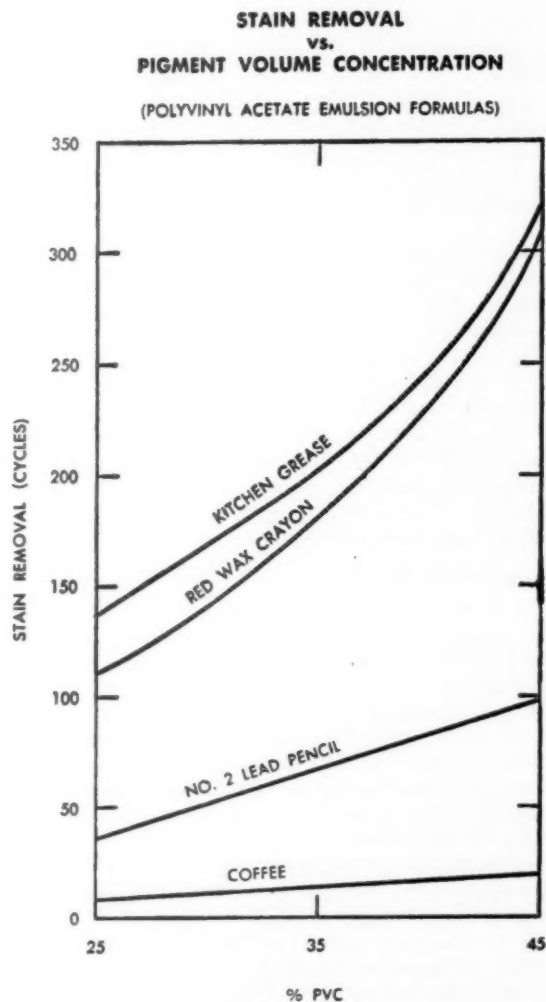


Figure 21. Effect of pigment volume concentration on the stain removal characteristics of polyvinyl acetate emulsion test formulas.

Mercurochrome and lipstick did not uniformly and consistently come off before the 500 cycle limit set for this test.

Burnish Resistance

Burnish resistance was evaluated by measuring the gloss of the scrubbed section of the washability panel before, and after, the 500 cycles to which it was subjected during the wet abrasion resistance test.

No correlation between Kaolinite particle size and burnishing could be detected, partly because of the fact that the average change in gloss before and after scrubbing was less than one gloss unit for all of the Kaolinites.

Only Emulsions A and B could be evaluated for burnishing, since they were the only ones which passed the required 500 scrub cycles. No significant differences were noted between these two emulsions.

Pigment Volume Concentration seemed to have a slight effect on burnish resistance. At 25% PVC, 500 scrub cycles reduced the gloss of the test panels an average of three points, whereas at 45% PVC the same number of cycles increased the gloss an average of one point.

Comments

Washability, as defined by the tests mentioned above, is an extremely important property of modern interior finishes. This was emphasized in a recent report of the National Paint, Varnish & Lacquer Association. This report brought out that poor washability was the most frequent reason given for complaint by consumers who reported poor paint jobs. It accounted for 2% of the 7.5% who reported dissatisfaction—a total of 26% of all those complaining. On the other hand, the second largest reason for satisfaction was "washes well, easily, satisfactorily". (12) In addition, it was found that the two most frequent reasons given for switching from wallpaper to paint were that paint was "easier to clean" and that it "can be washed" (13).

These observations emphasize the importance of washability to the consumer and show that formulation to achieve good washability is one of the most important factors to be considered in the production of a quality interior finish.

Film Formation at 40° F.

For most emulsion systems, a certain critical temperature range exists below which continuous films cannot be formed. With some types of polyvinyl acetate emulsions this temperature is well up in the range of possible application temperatures.

Unfortunately, the paint manufacturer has no control over the individual consumer's resistance to low temperatures. He must attempt to be reasonably certain that when the consumer wants to form a film, the paint will oblige.

In addition, it has been suggested that if good film fusion is obtained at sub-normal temperatures, optimum film-forming characteristics will be obtained at normal temperatures. (14). This is undoubtedly true within certain limits.

For these reasons it was thought that an evaluation of the effect of Kaolinite particle size on the film formation properties of polyvinyl acetate emulsion paints at 40° F. might give information which would be of value from several standpoints.

Procedure

The following test procedure was used:

1. Paints, brushes, and primed wall board panels 3/8" x 7" x 17" were conditioned in a refrigerator at 40° F. for at least 24 hours.

2. Paints were applied to the conditioned panels at 500 sq. ft. per gal. using the conditioned paints

and brush. Panels were immediately put back in the refrigerator to dry.

3. After drying in the refrigerator at 40° F. for 96 hours, panels were removed, conditioned at room temperature for two hours, and washed on a Gardner Straight Line Washability machine using a one-pound brush and a 2% "DUZ" solution.

4. The number of cycles to film failure was taken as an indication of the degree of film formation. Test was stopped after 500 cycles, if no failure had occurred.

Kaolinite particle size had no effect on the 40° F. film formation properties of any of the emulsions tested.

Again, however, there was a large difference between the various emulsions. This is shown in Figure 22.

FILM FORMATION AT 40° F.			
Emulsion Tested:	Number of cycles to film failure at:*		
	25% PVC	35% PVC	45% PVC
Emulsion A	over 500	over 500	22
Emulsion B	over 500	over 500	22
Emulsion C	21	20	5
Emulsion D	50	50	8

*Average number of scrub cycles for all grades of kaolinite tested, regardless of particle size distribution.

Figure 22. Effect of various emulsions and pigment volume concentrations on the film formation properties of polyvinyl acetate emulsion paints at 40° F.

It is interesting to notice that at some point between 35% and 45% Pigment Volume Concentration, the wet abrasion resistance of all the emulsions fell off sharply. So sharply, as a matter of fact, that it would appear there has been a radical change in the nature of the films.

This point may be described very aptly by the concept of "Critical Pigment Volume" developed by Asbeck and Van Loo. (11) (14)

The data indicates that temperature can have an important bearing on the apparent Critical Pigment Volume of this type of system. Figure 20 shows that films formed at room temperature did not show this sharp drop-off in wet abrasion resistance within the range of Pigment Volume Concentrations tested.

It appears, therefore, that lowering the temperature at which these films were formed reduced the apparent Critical Pigment Volume from a point above 45% PVC to a point between 35 and 45% PVC.

This effect of temperature on the apparent Critical Pigment Volume could be a very important field for study. Paints formulated at high PVC levels offer many advantages, especially from a cost standpoint. High PVC formulation is certainly desirable when formulating with the more expensive synthetic resin emulsions in order to end up with a product which can be sold competitively. However, the data presented indicates that careful formulating and testing may be necessary to obtain a high PVC paint which can be used at both ordinary temperatures and low temperatures with satisfactory results.

Application Properties

Tests to determine brushing and levelling characteristics were made on 3/8" wall board panels meas-

uring approximately 4' x 2'. The first coat was applied to three-quarters of the unprimed wall board. When this coat was partially dry, the other one-quarter of the panel was painted, the paint being lapped into the partially dry edge of the first section.

When the first coat was thoroughly dry, three-quarters of the panel was again painted, this time starting from the opposite edge of the panel and covering the first coat lap mark. When this coat was partially dry the last one-quarter of the panel was painted, lapping into the partially dry edge of the top coat.

By using this technique it was possible to observe the brushing and levelling characteristics over the unprimed wall board, the one coat lap marks, the brushing and levelling characteristics over a self-primed surface, the second coat lap marks, and the extent to which the second coat covers the first coat lap marks, if any.

Excellent brushing and levelling characteristics were obtained from all of the Kaolinities. Their ability to impart a desirable degree of thixotropy was an aid in obtaining a "buttery" feel accompanied by good levelling.

The large particle size Kaolinities, such as Hydrite-Flat, seemed to have a slight edge over the fine ones as far as ease of brushing was concerned. However, this could have been due to their lower viscosity. (See Figure 19)

Colored Pigment "Flocculation"

Colored pigment "flocculation" has been a problem in formulating with polyvinyl acetate emulsions. In this sense, "flocculation" is manifest by a difference in color between portions of a painted surface which have received different amounts of shear, or "work", during the application process. It could also be called a "differential color rub-up".

An effort was made to determine if Kaolinite particle size had any influence on this phenomenon.

Procedure

1. Paints prepared at 35% PVC using 1.5 lbs. per gal. of TiO_2 were tinted with a predispersed toluidine red pulp, using approximately 15 parts of a 20% pulp to 150 parts of TiO_2 .

2. The tinted paints were applied to panels prepared from 3/8" x 7" x 17" unprimed wall board. Spreading rate was approximately 500 sq. ft. per gallon. Panels were brushed carefully, first in the long direction of the board, then at right angles to the long direction, and then over the long direction again, very lightly.

3. The panels were allowed to dry for 24 hours at room temperature.

4. A second coat was flowed on and brushed very lightly and only in the long direction of the board until the surface was completely covered with fresh paint.

5. The brush was then quickly washed and spun dry.

6. Approximately one-quarter of the panel was then brushed with the dry brush at right angles to the long dimension of the panel until the paint was dry. The brush was occasionally wiped dry during this dry brushing operation.

7. Color differences between sections of the panels

which had received different amounts of work were noted and taken as a measure of the colored pigment flocculation characteristics of the system.

Kaolinite particle size had no effect on the degree of flocculation of the colored pigments in these paints.

A definite difference in the degree of flocculation was noted between paints made from the different emulsions, those made from Emulsions A and B being superior.

Water Spotting

Tests were run to determine if Kaolinite particle size had any effect on the water spotting properties of paints formulated from the different emulsions.

Procedure

1. The same base whites prepared for use in the colored pigment flocculation test were tinted to a 50% reflectance with a predispersed monastral green pulp.

2. Draw downs were made on glass plates using a .004" Bird Film Applicator.

3. Films were allowed to dry overnight.

4. Five ml. of water was dropped on the films from a burette and the time was measured to the first sign of a definite blush.

5. The panels were tilted at right angles to allow the water to run off and were then allowed to dry.

6. The time required for the blushed spot to return to its original color was noted. If the blushed spot never returned to its original color this was also noted.

Results

Kaolinite particle size had no effect on the water spotting characteristics of the various paints tested.

A definite difference in water spotting was noticed between paints made from the different emulsions, those produced from A and B being superior.

Comments

It should be emphasized again that the purpose of this paper is to give information on the effect of Kaolinite particle size on paint properties. It is not meant to be a formulation study. There are places in the preceding section where better results could have been obtained if the formulas had been adjusted for each individual emulsion. This is especially true in the case of Emulsions C and D, where better wet abrasion resistance could have been obtained by adding additional film forming aids. This was not done since it was felt that a great deal could be learned from a basic study in which as many variables as possible were held constant.

By proceeding in this manner, the important point has been brought out that there are definite differences between individual polyvinyl acetate emulsions. It is to everyone's advantage that this point be made clear, so that the paint manufacturer will realize fully that each emulsion must be formulated individually in order to bring out its best points.

ACRYLIC EMULSION PAINTS

One of the most promising of the new synthetic resin emulsion vehicles to appear on the scene in recent years is an acrylic ester resin known as Rhoplex AC-33. This vehicle seems to possess excellent pro-

perties for use in paints and is the object of intensive investigation.

Unfortunately, the current cost of this material is rather high and, in general, its use is limited to applications where a high raw material cost is not the most important consideration. These applications are, understandably, few. Special formulation techniques or other means of reducing the cost of the finished paint will probably be necessary before widespread use can be expected.

One of the most obvious ways of approaching this problem is, again, through the intelligent use of extender pigments. Kaolinite has been found to be particularly useful, due to its good settling and caking characteristics, its inert behaviour, and its ability to promote good application properties.

Information on the effect of Kaolinite particle size on some of the properties of these systems is presented here. A much more detailed investigation is in progress, the results of which will be published at a later date.

The following commercial Kaolinites were evaluated in this resin:

GRADE	% FINER THAN 2 MICRONS
Hydrite-PD-10	95
Hydrite	80
Hydrite-Flat	18

Complete particle size distribution curves of these grades are shown in Figure 6. Each of these grades was evaluated in each of the formulas shown in Figure 23. Note that the amount of prime hiding pigment was held constant at each PVC level.

Again an effort was made to keep the test formulas as simple as possible, yet still representative of general commercial formulations.

MATERIAL	Pounds per 100 gallons at:		
	42% PVC	47% PVC	52% PVC
Titanium dioxide (rutile, non-chalking)	235	235	235
Kaolinite	150	200	250
Lecithin (water dispersible)	3.8	4.4	4.8
Casein solution (12.5%)	46	52	58
Rhoplex AC-33 (46% Solids)	450	435	400
Water	241	230	238
	1125.8	1156	1185.8
% Solids	53.3	55.6	57.5

Figure 23. Rhoplex AC-33 emulsion test formulas.

Procedure:

1. Lecithin and casein were dispersed in all of the water.
2. Pigments were wet out in the above on a Waring Blender at medium speed.
3. Pigment slurry was given one pass through a Morehouse Mill at 0.001" clearance using SR #254 stones.
4. The pH of the grind was adjusted with ammonium hydroxide to that of the AC-33 emulsion.

5. The emulsion was blended into the pigment grind on a propellor mixer at a speed slow enough so that no air was incorporated into the paint.

Casein has been used in these formulas because of its efficiency as a dispersing agent and because of the good brushing and levelling characteristics which it helps to impart.

More work is being done in the laboratory to determine the effects on the Kaolinite particle size characteristic curves of using other types of dispersion and thickening systems in connection with this vehicle.

Test Methods:

TT-P-141b

Results

Figures 24, 25 and 26 show the effect of Kaolinite

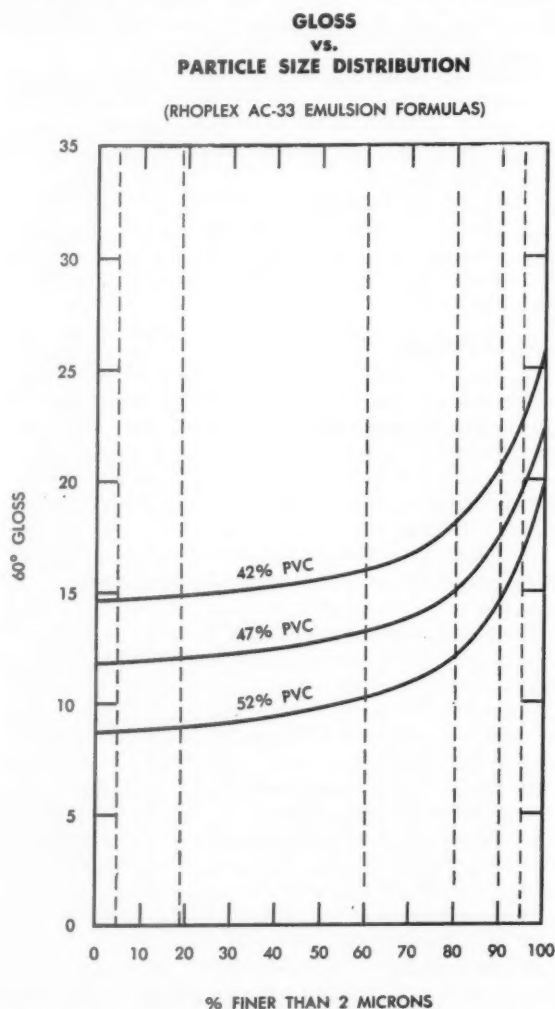


Figure 24. Effect of Kaolinite particle size on the 60° gloss of Rhoplex AC-33 emulsion test formulas.

particle size distribution on gloss, contrast ratio, and viscosity.

These curves are quite similar to those obtained in the study on butadiene-styrene latex systems and are typical of those obtained from well dispersed systems. As before, a study of these curves will suggest many ways in which PVC and Kaolinite particle size

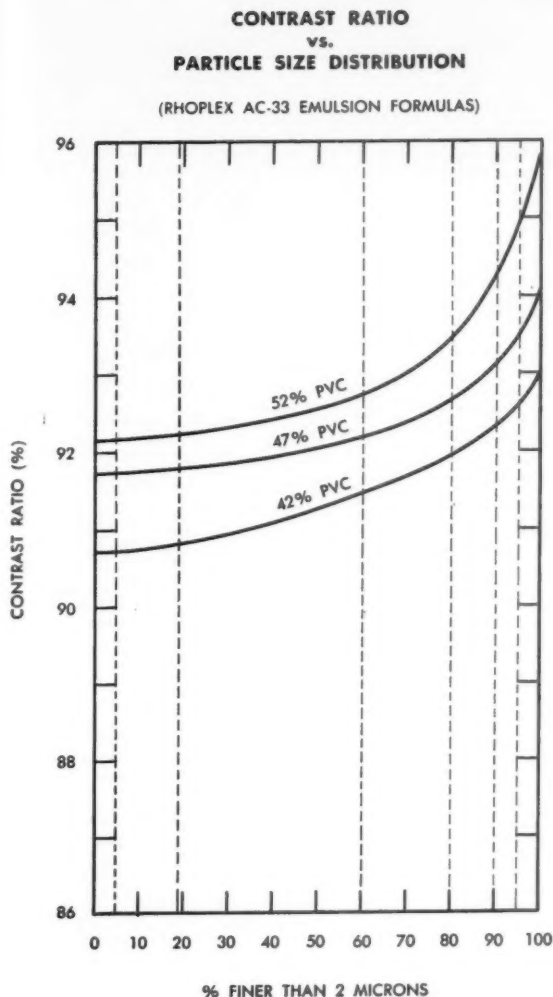


Figure 25. Effect of Kaolinite particle size on the contrast ratio of Rhoplex AC-33 emulsion test formulas.

may be used as an aid in controlling these important properties.

Summary

Kaolinite particle size and pigment volume concentration have an important effect on many paint properties. The following observations were made during the course of this study:

1. 60° gloss increased as Kaolinite particle size decreased. The rate of gloss increase became especially rapid as Kaolinites containing more than 80% by weight of particles finer than 2 microns were used. In some types of polyvinyl acetate emulsions this effect was at a minimum.

- 60° gloss decreased as pigment volume concentration increased. In some types of polyvinyl acetate emulsions this effect was at a minimum.

2. Contrast ratio (dry hide) increased as Kaolinite particle size decreased. The rate of increase was especially rapid as Kaolinites containing more than 80% by weight of particles finer than 2 microns were used.

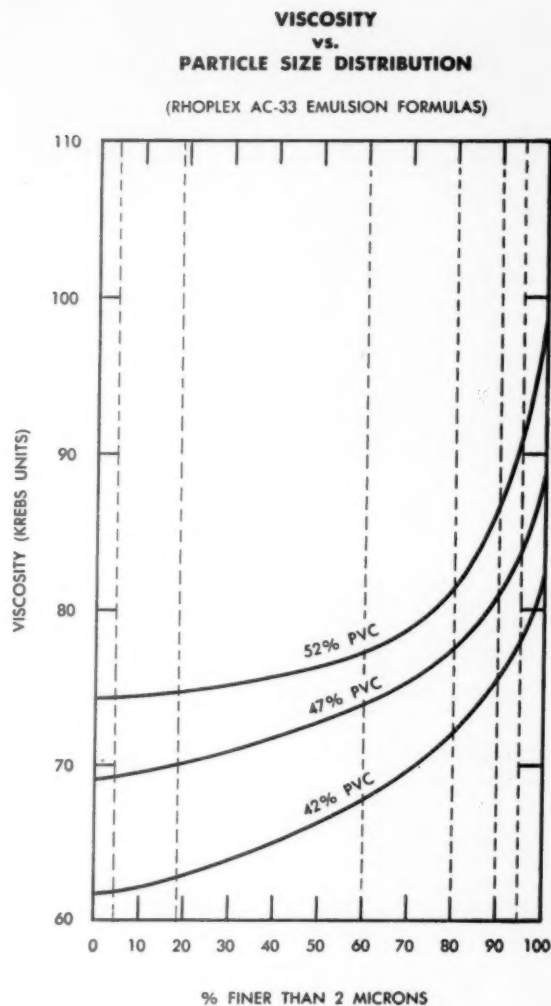


Figure 26. Effect of Kaolinite particle size on the viscosity of Rhoplex AC-33 emulsion test formulas.

Contrast ratio (dry hide) increased as pigment volume concentration increased provided the amount of prime hiding pigment was held constant. When the amount of prime hiding pigment was reduced, dry hide increased, or decreased, depending upon the magnitude of the reduction in prime pigment.

3. Viscosity increased as Kaolinite particle size decreased. The rate of increase was especially rapid as Kaolinites containing more than 80% by weight of particles finer than 2 microns were used.

The effect of pigment volume concentration on viscosity at a given percent solids depends upon the method used in calculating thickener additions and on the effective water demand of the Kaolinite as dictated by the type and amount of dispersing agents used and the nature of the system.

4. The degree of thixotropy of butadiene-styrene formulas increased as Kaolinite particle size decreased.

5. Within experimental error, wet abrasion resistance was not affected by Kaolinite particle size.

Within experimental error, wet abrasion resis-

(Turn to page 68)

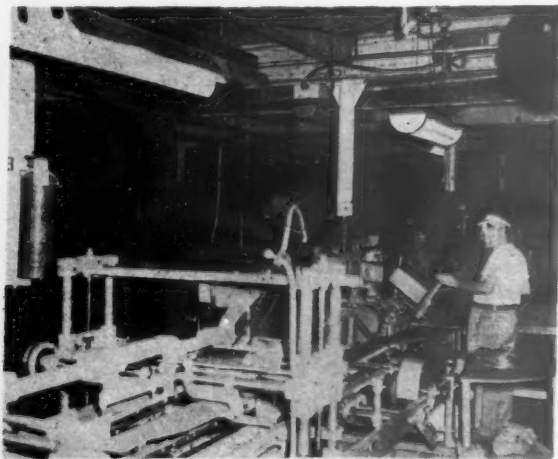
CONVEYORIZED PACKAGING AT FOY PAINT COMPANY

- INCREASES CAPACITY 50%
- CUTS PACKAGING COSTS
- IMPROVES WAREHOUSING

By
James J. Foy
Plant Supt.
Foy Paint Company

ONE of the most vexing problems confronting the Foy Paint Company of Cincinnati was a bottleneck in its packaging department.

Manufacturing and mixing operations in this plant were capable of turning out far more paint than could be packaged by hand. This resulted in lost production and higher operating costs since manufacturing had to be curtailed while packaging caught up.



Installation showing labeler (background), packer discharging case onto conveyor, and beginning of gluer unit. Packaging line has compression unit and automatic printer.

To further aggravate an already bad situation, Foy recently acquired the Burdsal Company which immediately meant an increase in their sales volume by some 20%. In order to cope with this added gallonage, the firm had two alternatives:

1. acquisition of additional plant space for increasing packaging facilities
2. find an entirely different approach to their present method of packaging



With case in place, worker trips lever which discharges cans into case. Gallons are packed two to the case; quarts in a 3 x 2 x 1 pattern.

It was decided that consideration be given to the second approach. After analyzing numerous suggestions from experts in the packaging and material handling fields, Foy engineers discarded their method of handling everything by batches and on hand trucks between operations, and adopted a production schedule method entailing a conveyor system.

This system required seven additional 700-gallon mixing tanks. All tanks were relocated to the middle of the room in two parallel lines. A "U" shaped conveyor system, three lanes wide was installed, surrounding these tanks and far enough away from them to allow filling units (Ambrose) to be wheeled between the tanks and conveyor. This arrangement gave complete access to all tanks and any one of the three conveyor lanes. The unit was so designed and installed by The E. W. Buschman Co. that two lanes provided immediate use and a third lane for future expansion.

Empty cans and unbossed lids are brought to the fillers by hand truck. The filling operator places these one at a time on the machine. After the lids are seated, the cans are automatically discharged onto the conveyor and batch numbers are ink imprinted on the lids as the cans are carried along. The cans proceed automatically to the intake twisters of two labeling machines which had been in operation in the old system. The cans then twist, roll through the labeler, and retwist into an upright position as they discharge onto the intake of the packers, produced by Standard-Knapp, Div. of Emhart Mfg. Co.

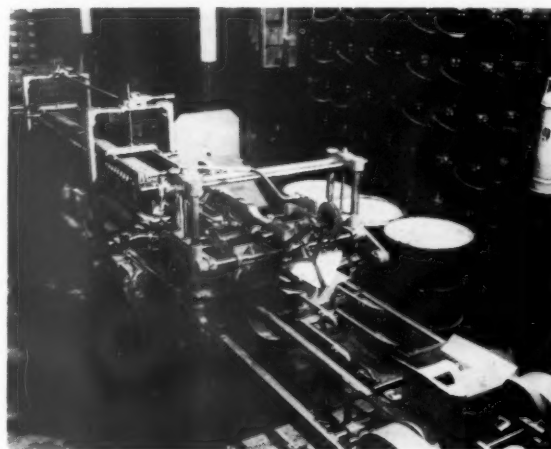
These packers require a person to feed the empty cases to them. This person has the dual job of running the packer and keeping a supply of labels in the labeling machine immediately next to him. The cases, filled and discharged from the packer, immediately enter a gluer and compression unit where the flaps are closed and sealed. They then proceed into a printer which automatically imprints the brand name as well as product description on the opposite ends, eliminating the old job of hand-labeling each case. Up to this point, the operation was carried on two completely separated identical lines which have provided flexibility as far as size and color are concerned. However, the output of these two lines are conveyed onto a common warehouse conveyor and the cases are either loaded onto skids or placed in waiting trucks by one man. The entire filling and packing department is operated by five men.

The advantages of the new system are:

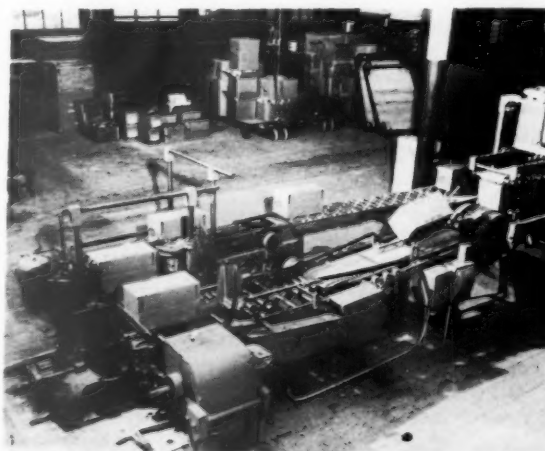
1. Additional 50-75% of capacity can be filled in 8-hour day with fewer people.
2. The Standard-Knapp packers, has enabled Foy to change from top opened case to side open cases which has reduced the flap area and consequently the case cost by about 20%.
3. Labeling costs for the shipping cases have been eliminated.
4. By scheduling pint and half pint production during the winter months and then warehousing these sizes, gallon and quart requirements can be maintained as they are received during the rush season. This eliminates a warehousing problem for most shipments.



Separate line handles quart cans in the same manner. Worker is preparing to place a case against the discharge end of the packer in the quart line.



From the packer, filled cases move along conveyor to gluer with compression unit. Top and bottom flaps of the case are simultaneously glued and sealed.



Moving from gluer and sealer, cases are twisted onto their sides and then make a right angle turn into the case printer. After printing, cases make another right angle turn onto an off-bearing conveyor.

ACRYLIC MONOMERS IN COATING VEHICLES

By
E. H. Riddle^a

THE term "acrylic monomers" is used industrially for both acrylic and methacrylic acids and their derivatives, including esters, amides, and nitriles. This talk will be concerned primarily with the esters. These monomers are useful both in latex and organic solvent coatings.

The monomeric acrylic esters that are available in commercial quantities are as follows:

<i>Acrylates</i>	<i>Methacrylates</i>
Methyl	Methyl
Ethyl	Ethyl
Butyl	Butyl
2-Ethylhexyl	Hexyl
	Decyl-octyl
	Lauryl
	Stearyl

The effect of the alpha-methyl group in the methacrylates is quite striking. Whereas methyl polyacrylate is a tough, rubbery polymer which forms a pliable film of high extensibility, methyl polymethacrylate, familiar to you as Plexiglas sheet, is a hard, fairly rigid material which can be sawed, carved or worked on a lathe with ease. In both the acrylate and methacrylate series, as you go from the methyl to

the ethyl to the butyl ester, the polymers become softer, more extensible, and tackier, with the acrylate in each case having these properties to a greater degree than the corresponding methacrylate. These variations in softness and extensibility can be demonstrated by either a brittle point or glass temperature measurement. In both the acrylate and methacrylate series the brittle points and glass temperatures decrease to a minimum as the length of the alkyl chain in the alcohol residue increases. In the acrylate series, this minimum occurs with octyl acrylate, with 2-ethylhexyl acrylate only slightly higher; in the methacrylate series, the minimum occurs at lauryl methacrylate. As a result of side chain crystallization, the polymers of stearyl acrylate and methacrylate are wax-like solids with relatively low melting points, becoming soft and tacky above their melting points.

As would be expected, the solubility in organic solvents increases and the water absorption decreases as the alcohol chain in the ester group is lengthened. All of these acrylates and methacrylates, from methyl to stearyl, give polymers which exhibit the outstanding transparency and aging properties which have made these polymers of

interest in a wide variety of applications, not the least of which is the coatings field. The acrylates have been of most interest in the latex paint application, whereas the methacrylates have been used most widely in solvent coatings.

Polymerization

Acrylate monomers are readily polymerized by the emulsion technique. The polymerization may be carried out either at reflux temperature with a persulfate catalyst, or at room temperature with a redox catalyst system consisting of a peroxide as catalyst and a reducing agent as activator. Redox systems commonly used with acrylate monomers include potassium or ammonium persulfate with a sulfur-containing reducing agent such as sodium thiosulfate, bisulfite, or sulfoxylate formaldehyde; a very small amount of a soluble iron salt may be beneficial in reducing the induction period. In the redox method, all of the monomer emulsion is usually charged to the reactor, along with the catalyst, and then the activator is added to the mixture to start polymerization. The temperature will rise rapidly, often going as high as 90°C. within 2-3 minutes, and the polymeriza-

^aThis paper was presented before the Vehicle Manufacturers' Group of the New York Paint, Varnish & Lacquer Association on March 9, 1955. E. H. Riddle is connected with the Rohm & Haas Co.

tion is complete in 15-30 minutes. The disadvantage of this method is the necessity of having a solids content below 35% in order to keep the reaction under control.

In the reflux method, particularly where high solids are desired, it is not safe to add all the reactants together at the start of the polymerization because of the difficulty of removing the heat of polymerization. Therefore, it is preferred to have only a small portion of the monomer emulsion present in the kettle initially, the remainder being held in a separate tank to be added gradually after polymerization has been started. The rate of addition is controlled to keep the reaction running smoothly at reflux temperature. This method usually requires 1-2 hours for completion, after the reflux stage has been reached. At the end of the reaction, when there is very little monomer left to reflux, the temperature is usually raised to 90-95°C. to reduce the unreacted monomer to as low a concentration as possible. A final stripping operation, either by vacuum distillation, by passing a stream of air through the hot emulsion or by steam distillation, will usually remove the final traces of unreacted monomer.

Effect of Particle Size

One of the most critical properties of a polymer emulsion is the particle size. This is dependent on a number of interrelated factors, including the type of emulsifier, amount of emulsifier used, method of monomer addition to the reaction kettle, and salt content of the water and emulsifier used. Under comparable conditions, anionic emulsifiers, such as the sulfate and sulfonate types, yield emulsions of smaller particle size than non-ionic emulsifiers. With a high quantity of emulsifier present initially, a large number of particles will be formed and the particle size of each will be smaller. Conversely, a large particle size is obtained with a low emulsifier content, the limiting factor here being the amount of emulsifier needed to maintain a stable polymer dispersion. In the reflux method of emulsion polymerization, when the gradual addition

process is employed, the monomer may either be added undiluted to the full charge of emulsifier in the reactor or it may be added as an emulsion. When added undiluted, a very finely divided emulsion is obtained initially since there is a relatively high emulsifier concentration. When the monomer emulsion is added, the particle size is more uniform and the polymer dispersion more stable. The monomer emulsion method is particularly preferred for high solids latices.

The gloss of a film increases with a decrease in particle size of the latex, probably because of the greater ease of film formation of a small particle size latex. However, the smaller particles have a greater amount of surface and therefore require a higher concentration of emulsifier to maintain adequate mechanical stability. The higher emulsifier concentration, in turn, leads to a decrease in water resistance of the film. Therefore, the particle size must be a compromise between these factors. Since the acrylate esters inherently provide polymers of better mechanical stability than many other monomers, the particle size can be smaller, with resultant benefits in ease of film formation and in gloss.

Acrylates for Latex

Ethyl acrylate and 2-ethylhexyl acrylate are probably the most important acrylate monomers for the latex paint field. Ethyl polyacrylate itself has a number of outstanding properties for use in this application. It has inherent flexibility, forms films readily, has excellent pigment binding power, good emulsion stability and stability to hydrolysis compared with polyvinyl acetate, better water resistance than polyvinyl acetate, good adhesion, excellent film clarity, and weathering properties which make it ideal for exterior masonry paints. The recent 4c per pound price reduction which *Rohm & Haas* made in ethyl acrylate monomer, bringing the tankcar price down to 38.75c, has improved the economic picture. Ethyl acrylate is also useful in copolymers, particularly with vinyl acetate. In addition to providing a permanent plasticizing effect, which

aids film formation, ethyl acrylate contributes many of the properties which are inherent in its homopolymer, such as improvements in pigment binding power, adhesion, emulsion stability and water resistance. Copolymerization with 2-ethylhexyl acrylate provides even better water resistance, and smaller percentages of 2-ethylhexyl acrylate are required compared with ethyl acrylate to obtain the same flexibility in a vinyl acetate copolymer. The present price of 2-ethylhexyl acrylate is 75c per pound for drum quantities, but this price is expected to come down to around 55c per pound when this monomer is produced in large quantities. Vinyl acetate-acrylate copolymers may be prepared by conventional emulsion polymerization techniques. The commonest method employed is with ammonium or potassium persulfate as catalyst, with an anionic emulsifier; the reaction mixture is refluxed and polymerization is complete within 2-4 hours. A redox system of ammonium persulfate and sodium bisulfite has also been used, with an anionic emulsifier, and with the pH adjusted to 4.6 with sodium phosphate as a buffer; polymerization was complete in 2 hours at 40°C. No protective colloids such as polyvinyl alcohol are necessary.

Solvent Systems

The acrylic monomers may also be used in making vehicles for use in solvent systems. In this case, the methacrylates have been used to a greater extent than the acrylates because of their better hardness, greater resistance to alkalis and other chemicals, and better electrical properties. Here also the acrylates have been used as internal plasticizers. The methacrylate polymers and copolymers are readily prepared in a wide variety of solvents, of which aromatic hydrocarbons, esters and ketones are most commonly used. The higher methacrylates may be polymerized in aliphatic hydrocarbons such as mineral thinners. These solutions may be used for heat-resisting white enamels of good color retention, with vinyl resins for fabric solution-coating, for printing compounds used on vinyl film, for clear metal coatings,

(Turn to page 67)

NEWS



N. P. Beckwith

N. D. Agricultural College Gives Beckwith Degree

Newell P. Beckwith, President of the Federation of Paint and Varnish Production Clubs, received a Doctor of Science degree last month from North Dakota Agricultural College from which he graduated with the class of '36. The college, world renowned for its Paint Technology School, is celebrating its 50th anniversary.

He also delivered the 1955 Commencement address. His subject was "Formulation for Your Future."

Beckwith is Vice President and Technical Director of Detroit's Rinshed-Mason Co., and is also General Manager of the company's Windsor, Ont. plant. He is well known for his continued support of technical education as a means of advancing the paint industry. He organized courses in paint technology at Wayne University in Detroit, then actively supported students seeking practical experience by employing them at the Rinshed-Mason Co. during non-school hours.

Besides his activities in the Federation of Paint and Varnish Production Clubs, he is a member of the Society of Automotive Engineers, is active in the National Paint, Varnish and Lacquer Association, and during the last five years has been a member of the field survey team which has been evaluating automotive finishes throughout the country.

Southern Paint Convention Slated Feb. 29-Mar. 2, '56

The 20th Annual Convention of the Southern Paint and Varnish Production Club will be held in Atlanta, Ga., Feb. 29-Mar. 2 at the Atlanta Biltmore Hotel. Because of the conflict of dates with the West Coast Clubs' 3rd Biennial Symposium, the tentative dates set for Biloxi were cancelled.

American Chem. Society Meets In Glen Falls, N. Y.

Over 200 members of the Eastern New York Section of the American Chemical Society and their wives attended the annual meeting in Glens Falls, N. Y., May 21.

Dr. Floyd W. Green of the research staff of the Imperial Paper and Color Corporation was installed as Chairman of the Section. He becomes the first officer to be elected from the Glens Falls area. The majority of the approximately 750 members reside in the Albany-Schenectady area.

Elected a member of the American Chemical Society in 1942, the year in which he became associated with Imperial, Dr. Green has taken an active leadership in the Eastern New York Section. He received his A. B. degree from DePauw University, and his Ph.D. from Cornell University.

The Imperial Paper and Color Corp., host for the day, provided a conducted tour of the plant and laboratories of the Pigment Color Div.

Seventy-five members were shown the many sections of the plant where Chrome Yellows, Chrome Greens, Molybdate Oranges, Zinc Yellows, Phthalocyanine Blues, Chromium Oxide, Chromium Hydrate and Cadmium colors, as well as many organic colors, including reds, yellows, greens and blues are manufactured. The members also visited the raw material production units where sodium bichromate, lead chemicals, organic intermediates and various other raw materials are manufactured.

Enterprise Establishes Special Finishes Dept.

Establishment of a new Special Finishes Dept. of the Industrial

Div., with Franklin M. deBeers, Jr. as Manager, has been announced by Edwin G. Marsh, Vice President, Enterprise Paint Mfg. Co., Chicago, Ill.



F. M. deBeers

With headquarters at the Chicago plant Mr. deBeers will direct development and sales of protective and decorative coatings for the packaging field, including metal cans, metal closures, aluminum foil wraps, steel shipping containers, steel cartridge cases, and paper containers. Particular emphasis will be given to phenolic, oleoresinous, alkyd, epoxy and vinyl lacquers and enamels. The facilities of the research laboratories will be at the disposal of the new department.

Heyden to Build \$4 Million Pentaerythritol Plant

Heyden Chemical Corp., said to be the largest producer of pentaerythritol, will build a new \$4,000,000 plant. Its annual capacity will be 25 million pounds of pentaerythritol, according to Simon Askin, President. It is expected to be in production by the end of 1956.

Heyden, pioneer in the commercial development of pentaerythritol and related polyol alcohols, markets these products under the trades names "Pentek," "Mono-Pentek," "Di-Pentek" and "Tri-Pentek" and also produces a government specification nitration grade for explosive use.

The new plant is the fourth major expansion by Heyden in this field since the construction of its first commercial pentaerythritol plant in 1939.

Kix Miller Elected V. P.

Richard W. Kix Miller was elected Vice President in charge of the Chemical Division of Celanese Corporation of America. He joined the company in 1946, and in 1952 was named General Manager of the division.

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and messy paint skin.



**TAILOR-MADE
PACKAGE SERVICE**



YOU SHOULD KNOW ABOUT B

This latex has a s



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OUT BAKELITE LATEX
BRAND

WC-130

a splendid "inside" story

Designed as a High Quality Vehicle for Interior Wall Sealers and Coatings to Provide Superior Color, Toughness, and Resistance to Alkalis and Cleaning Compounds.

WC-130, a BAKELITE Brand vinyl acetate resin latex, is a smooth, stable, fast-filming aqueous dispersion. Developed specifically for coatings applications, this latex features marked resistance to foaming and unusual electrolyte tolerance. Paint films based on this latex possess good water resistance together with all these other advantages . . . and show outstanding *retention* of these superior film properties on aging.

Initial exposure data on vinyl acetate resin latices looks very promising. Exterior paint formulations based on latex WC-130 are being exposure tested at sites in Vermont, New Jersey, Pennsylvania and Florida. Bakelite Company's Development Laboratories are continuing extensive investigations of latex WC-130 in many other coatings applications. Advance Technical Bulletin No. 1 gives formulations under test on exterior exposures.

For your information and assistance Technical Bulletin No. 225 provides suggested formula-

tions for interior applications such as plaster and wallboard sealer, various pigmented interior wall paints, wall patching compound, and tinting base together with manufacturing procedure and properties of these products made with BAKELITE latex WC-130. A list of tested pigments and extenders, plus cost data are included. For your free copies of Technical Bulletins No. 1 and No. 225, write Dept. GX-153



BAKELITE COMPANY, A Division of Union Carbide and Carbon Corporation **UCC** 30 East 42nd Street, New York 17, N. Y.

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will help you formulate low-cost
vinyl latex type paints and primers"

with **Celanese*** PVAc polyvinyl acetate emulsions

No matter what type polyvinyl acetate resin you are now using or planning to use, Celanese is the producer to depend on—for speed of delivery, quality of product and expert technical assistance with your formulating.

Celanese is dependable!

Celanese is a new source of supply for you—dependable today . . . next month . . . next year!

Celanese PVAc is the product of the Plastics Division—pioneer in paint and lacquer components. Technical Service Personnel are ready to get together with your chemists—to help you produce the best formulations for your purposes. Fill in and return coupon below for paint formulation information.

Celanese Corporation of America,
Plastics Division, Box 165-H,
290 Ferry Street, Newark 5, N. J.



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Box 165-H 290 Ferry Street, Newark 5, N. J.

Please send me New Product Bulletin ☐ NP-12 (Celanese Polyvinyl Acetate Emulsions for Paints); ☐ NP-14 (Celanese Polyvinyl Acetate Copolymer Emulsion CL-202 for Latex Paints);
☐ Samples of CL-100 and CL-202 Emulsions. I am interested in:
☐ Primers ☐ Interior Paints ☐ Exterior Paints

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TITLE _____ COMPANY _____
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PLASTICS and RESINS

*Reg. U. S. Pat. Off.

NEWS

Gordon Conferences To Be Held June 13-Sept. 2

The Gordon Research Conferences, sponsored by the American Association for the Advancement of Science, will be held June 13-Sept. 2 at Colby Junior College, New London, N. H.; New Hampton School, New Hampton, N. H.; and Kimball Union Academy, Meriden, N. H.

The Organics lectures will be given Aug. 15 to 19. Louis A. Melsheimer and Harry Burrell are Chairman and Vice Chairman, respectively.

The program is as follows:

August 15

Some Recent Aspects of Oxidation and Oxidative Polymerization In Drying Oil Films, Walter O. Lundberg.

Effect of Driers on Chemical Compositions and Film Properties of Linseed Oil and Varnish Films, Ernest Mueller.

August 16

A Study of the Infra-Red Absorption Spectra of Gaseous Degradation Products of Organic Films Under Ultraviolet Irradiation, Samuel B. Crecelius.

Intrafilm Bonding Forces in Relation to the Compositions, Structure, and Properties of Organic Coating Films, Turner Alfrey, Jr.

August 17

Physical Chemistry of Printing Ink Transfer, W. C. Walker

August 18

Physical Properties of Paint Films Relating to Service, Mark P. Morse.

The Influence of Emulsification Upon Stress-Strain Properties of Paint Films, Wouter Bosch.

August 19

Microbiological Factors in Film Deterioration, Paul Klens.

Microbial Effects on Organic Film Properties, Allen L. Alexander.



A symposium on solution coatings occupied an important part of the recent Sales Conference of the Chemical Div. of the Goodyear Tire & Rubber Co. in Akron, Ohio. Herman R. Thies, General Manager of the Chemical Div., headed the conference. Above photo shows the division's District Managers and sales representatives. Below, the paint panel in action. From (l to r), Don Hilliard, John Platner, R. E. Workman, A. E. Polson and R. S. Earhart, all members of the Chemical Division

Isocyanate Chemicals To Be Produced Full-Scale

What is claimed to be the first full-scale production plant in this country for the manufacture of isocyanate chemicals, is now being built at New Martinsville, W. Va. The plant is more than 40 per cent complete and production should start in October, according to David L. Eynon, President of Mobay Chemical Co.

New urethane coatings, made from isocyanate and polyester chemicals, is claimed to provide a floor with a glass-like gloss surface that will go unmarred even if someone wearing hob-nailed boots walked over it.

The coatings, to be supplied by the new plant, are two-component system; that is, just before they are applied, two chemicals must be mixed together and the resulting paint must be used within eight hours. These surface coatings reportedly have been used successfully in Europe for almost five years, following their development there by Farbenfabriken Bayer, A. G., which, with

Monsanto Chemical Co. of St. Louis, owns Mobay.

Mobay has also announced a new coating for magnet wires used principally in electronic equipment, motors and transformers.

The coatings, formulated from isocyanate and polyester chemicals, are said to have higher moisture resistance than other synthetic enamels for the magnet wire market plus solderability. The urethane coated wires need not be stripped before soldering, thus speeding assembly operations, according to the company.

H. R. Huston Dies At 62

Howard R. Huston, 62, retired Vice President and Director of American Cyanamid Co., died June 8 at his summer home at Truro, Mass.

Mr. Huston had retired on May 30, and had been serving the company as a consultant. He joined Cyanamid in 1930 as Assistant to the President. He was elected Vice President in 1951, and a Director in 1952.

NEWS



M. A. Williams

M. A. Williams to Retire

Max A. Williams will retire on October 31 of this year as Vice President and Sales Manager of American Mineral Spirits Co., it has been announced by A. W. Vallentyne, Chairman.

Mr. Williams will remain with the company in a consulting capacity and as a member of the Board of Directors.

Marbon Plans Extension

The Marbon Chemical Division of Borg-Warner has announced that some preliminary engineering work will soon be started in anticipation of the future development of the site recently acquired at Washington, W. Va.

Marbon Chemical presently employs 150 persons in its Gary, Ind. plant. The West Virginia land was purchased as a location for a possible extension of these facilities. Marbon manufactures synthetic resins, high-impact plastics, and adhesives for bonding rubber to metal.

Glidden-Grace Agreement

A 20-year technical know-how and licensing agreement between The Glidden Co. and the paint manufacturing subsidiaries of W. R. Grace & Co. in Argentina, Chile and Peru was jointly announced by Dwight P. Joyce, Glidden Board Chairman and President, and J. Peter Grace, President of W. R. Grace & Co.

Pacific Northwest Club Holds Spring Symposium

The Pacific Northwest Paint and Varnish Production Club held its spring symposium May 13-14 at Gaffney's Lake Wilderness Lodge near Seattle and Tacoma, Washington.

The following officers were elected for 1955-56: Victor H. Marchi, General Paint, Portland, Ore., President; R. P. Erwin, National Lead, Seattle, Wash., Vice President; C. B. Walker, Walker Bros. Ltd., Vancouver, B. C., Secretary; and J. Robinson, Rodda Paint, Portland, Treasurer.

Federation President, Newell Beckwith, President-Elect Clyde Smith, and Executive Secretary Homer Flynn, and their wives were present.

The five papers presented were: "Pigment dispersion in Acrylic Emulsion Paints" by H. J. Schiefele, Jr., Rohm and Haas Co.; "Washington Traffic Paint from Laboratory to Roadway" by Lowery W. Cody, Associate Materials Engineer, Washington Dept. of Highways; "The Use of Diatomaceous Calcite as Extender Pigment for Paints" by P. S. Schenck, Delore Div., National Lead Co. "Evaporation of Thinners and Solvents" by Don Rasmussen, California Research Corp.; and "New Trends in Colored House Paints" by Dr. W. G. Vannoy, Pigments Dept., E. I. DuPont de Nemours & Co., Inc.

James A. Leider given an autographed volume of Dr. Arthur K. Doolittle's, "The Technology of Solvents and Plasticizers." The presentation was made by D. E. Francisco, of Carbide and Carbon Chemicals Co. Leider was chosen the man of the year for service to the Industry and Club.

Form PVA Marketing Dept.

A marketing department to handle sales of polyvinyl resins has been formed by Shawinigan Resins Corp., Springfield, Mass. Development and technical service laboratories previously operated by Shawinigan Products Corp. in Milltown, N. J., have been purchased for this purpose.

A. W. Dunning, former Vice President of Monsanto-Kasei Chemical Co., Tokyo, has been named to head the department. District sales offices are expected to be opened soon in Chicago and Los Angeles.

Cegelski Killed In Crash

Stanley F. Cegelski, General Traffic Manager of National Can Corp., was killed in an automobile accident, May 14, in DuPage County, Ill.

Mr. Cegelski had been employed by National Can since 1942 and was its General Traffic Manager for the last 10 years. He leaves his wife, Dorothy, and a son, Stanley F. Jr., who is now attending St. Michael's College in Burlington, Vt.



Dr. Floyd W. Green (left), is presented with gavel by Dr. Alexander R. Surrey of Sterling Winthrop Research Institute, Rensselaer, N. Y.

NEWS

Industrial Maintenance Coatings Course Given

The First Industria' Maintenance Coatings Short Course will be given Aug. 1-5 by the Dept. of Paints, Varnishes and Lacquers, North Dakota State College at Fargo. The course will be directed by Dr. Wouter Bosch who has taught all regular and extra-curricular courses a N D.S.C. since 1947.

The complete program follows:

Monday, August 1

9:00 A.M. *Welcome*, Dr. Fred Hultz, President, North Dakota State College.

9:30. *Announcements and Introductions*, Dr. Wouter Bosch, B.S., M.S., Ph.D., University of Utrecht, the Netherlands, University of Minnesota.

10:00. *Paint Types*, Bosch.

1:30 P.M. *The Technique of Industrial and Maintenance Roller Painting*, John Touchett, EZ Paint Corp., Milwaukee, Wis.

8:00 P.M. *Get Acquainted Party*.

Tuesday, August 2

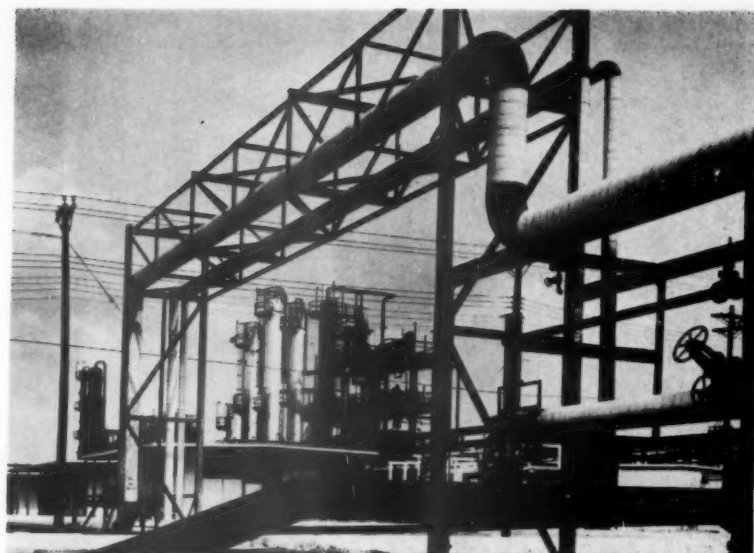
9:00 A.M. *Protection of Ferrous Surfaces*, S. J. Gajownik, B.S., Illinois Institute of Technology; Assistant Director of Chicago Technical Service Dept., The Sherwin-Williams Co.

1:30 P.M. *Surface Preparation of Aluminum and Magnesium for Painting. Painting of Aluminum and Magnesium*, Robert I. Wray, A.B., DePauw University, B.S. Purdue University, Chief, Paint Finishes Div., Aluminum Company of America, New Kensington, Pa.

8:00 P.M. *Formulations of Chlorinated Rubber Coatings as They Affect Corrosion Resistance. Case Histories of the Use of Chlorinated Rubber Coatings for Industrial Maintenance*, Fred K. Shankweiler, B.S. Pennsylvania State College, Manager, Chlorinated Products Sales, Hercules Powder Co., Wilmington, Del.

Wednesday, August 3

9:00 A.M. *Hotel Maintenance*, William Lorenz, B.S., University



The Dow Chemical Company's new synthetic glycerine plant at the Texas Division at Valasco. Commercial production is expected to start here.

of Nebraska, Chief Engineer, Schimmel Hotels, Lincoln, Neb.

1:30 P.M. *Proper Selection and Use of Color*, N.A. Mason, B.A., Abilene Christian College, B.B.A., University of Texas, Manager, Maintenance Sales, Pittsburgh Plate Glass Co., Pittsburgh, Pa.

8:00 P.M. *Informal Party in the "Bosch Residence."*

Thursday, August 4

9:00 A.M. *Making the Most of the Spray Painting Method*, George I. Stoddard, B.S., University of Toledo, Chief Instructor, DeVilbiss School of Spray Painting, Toledo, Ohio.

6:00 P.M. *Steak Fry*, In Lindenwood Park, Fargo.

Friday, August 5

9:00 A.M. *Paint Blistering, Cracking, Peeling*, Bosch.

1:30 P.M. *Coatings for Exterior and Interior Masonry Surfaces*, T. J. Henry, Manager, National Maintenance Sales, The Glidden Co., Cleveland, Ohio.

8:00 P.M. *Selecting and Buying of Paint*, Bosch.

Closing Remarks.

P. H. McCarthy, 86, Dies; Founder of Vulcan Co.

Patrick Henry McCarthy, founder of Vulcan Stamping & Mfg. Co., Vulcan Tin Can Co., manufacturers of steel shipping pails, drums, and tin cans, died on June 10. He was 86.

Mr. McCarthy started his own business in 1916, specializing in metal stampings and specialties and small tin cans. Later, he centered all his attention to the manufacture of steel shipping pails and drums, then an infant industry.

Through his efforts and those of his son, Vern I., President, manufacturing plants have been established in Birmingham, Ala., and Toronto, Canada.

In 1952, the story of his life was portrayed in a book entitled, "The Story of a Man and the Company He Built." Copies were sent to customers and friends throughout the world.

Mr. McCarthy is survived by his widow, Seeley; two sons, Vern I. and Earl J. McCarthy; and grandchildren, Irene E., Norma D., and Vern I. McCarthy, Jr. and Mrs. Carole Treptow.

International Labs Expand

Expansion of its completely equipped Paint Testing Laboratory was announced by International Testing Laboratories, Inc., 578-582 Market St., Newark 5, N. J.

In addition to serving the paint manufacturer in testing and evaluating coatings for compliance with specifications, International offers a consultation service for users of industrial finishers, and invites inquiries regarding the development and formulation of special coatings.

REDS

more of them...
and better made!

58

SHADES
AND TYPES

PURE RED IRON OXIDES

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Meanwhile, send today for complete
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NEWS



Chancellor Henry T. Heald of New York University (right), confers honorary degree of Doctor of Engineering upon Alex Stewart, Director of Research, National Lead Company.

Cyanamid Establishes 2 New Research Groups

Two new research groups have been established in the Intermediates and Chemicals Section of the Bound Brook Research Laboratories of American Cyanamid Co., it was announced by Dr. M. Scalera, Director of Research there.

An Intermediates Group, under Dr. J. H. Thelin, will be responsible for research in the general field of chemical intermediates of the aromatic type. It will also be responsible for operation of the Preparation Laboratory at Bound Brook, and for the coordination of work between that laboratory and the company's New Product Development Dept.

A Special Chemicals Group, under Dr. J. F. Hosler, will be responsible for research in certain specific fields not presently covered by other product groups at the Bound Brook Laboratories.

Japanese Rights Granted

The Risdon Manufacturing Co., Naugatuck, Conn., has granted an exclusive license to Aerosol Industries Corp., Osaka, Japan, for the manufacture and sale of the complete line of its aerosol dispensing valves in Japan.

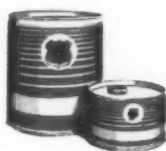
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SOLTROL*

ODORLESS MINERAL SPIRITS

Choose Soltrol 130 for its fast drying characteristics. Use Soltrol 170 if you want longer wet edge.

Soltrols are available in 4,000 or 8,000 gallon tank cars, or in 6,000 gallon compartment cars containing both Soltrols. Phillips customers enjoy prompt service and dependable supply at all times. Write for complete information.



FREE TEST SAMPLES

Like to test Phillips 66 Soltrols? We'll gladly send you samples for evaluation. Just tell us how much Soltrol you need to prove to yourself the advantage of odorless Soltrols in your products.



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SPECIAL PRODUCTS DIVISION
BARTLESVILLE, OKLAHOMA**

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NEW MATERIALS & EQUIPMENT NEW

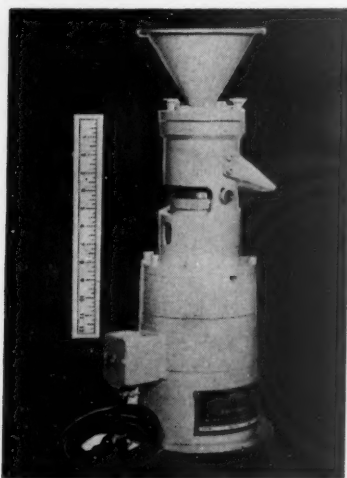
A MONTHLY MARKET SURVEY

This section is intended to keep our readers informed of new materials and equipment. While every effort is made to include only reputable products, their presence here does not constitute an official endorsement.

RESEARCH MILL

Stainless Steel

A small, light weight, all stainless steel mill, "Model SS-200," is claimed to answer the needs of general research.



MOREHOUSE-COWLES

As in the larger company mills, high-speed, non-contaminating grinding discs are made of aluminum oxide "aloxite" by The Carborundum Co. Unit measures just 23½" high, 8¼" in diameter. Throughput rate is from 1 to 3 gallons per hour. Motor is either explosion proof or totally enclosed, ¾ hp, available in two- or three-phase only, for practically any required voltage and cycle characteristics, for either continuous or intermittent operation.

In addition to its research applications, the model may be used by manufacturers in small batch production and demonstration of production formulas. Morehouse-Cowles, Inc., 1150 San Fernando Rd., Los Angeles 65, Cal.

LINSEED COPOLYMER

Interior Flats

Company announces production of "Metrolin #209-30," a pure linseed/resin co-polymer for use in interior flats. Designed to meet the alkyd challenge in interior flats, product makes up into a paint showing superior sheen, less polishing action after

scrubbing and excellent brushability, according to the company. In formulating, its compatability and ease of mixing and grinding are claimed far superior to alkyd vehicles. Samples available from Brown-Allen Chemicals, Inc., P.O. Box 1, Staten Island 2, N. Y., Dept. S-29.

Artificial Heavy Bodied Oils?????

VISCATONES 649 - 654

The VISCATONES 649 and 654 function identically to heavy bodied oils to contribute ideal working properties to oil and alkyd house paints, enamels, and flat wall paints including odorless types.

Very small amounts (0.1 lb. or less per gallon) accomplish the same advantages as large amounts of bodied oils without the disadvantages such as brush pull and sagging.

The VISCATONES 649 and 654 eliminate brush marks. In this respect they are extremely effective modifiers of BENTONE* 34 (*TM Nat'l. Lead Co.) and similar products.

You can now formulate to any predetermined oil-resin-solvent-pigment combination without worry about working properties.

You can reduce total solids in interior flat alkyds with vast improvement of working properties and costs.

Write for information and samples

VISCATONE CHEMICAL CO.

Zeigler, Illinois



Now we make latex-base interior paints with regular equipment in 3 easy steps

With Cargill EVT-50 we can manufacture a superior flat latex-base paint on standard plant equipment just as easily as we now make conventional oil-based paint. Costly and troublesome steps are eliminated!

Because Cargill EVT-50 is a stable, *uniform* vehicle with controlled particle size, we can manufacture paint of *consistently uniform quality* . . . every batch the same.

Cargill EVT-50 contains both synthetic latex and oleoresinous polymers—balanced to give the best properties of each.

With this complete vehicle we can turn out more and *better* interior paint, with amazing durability and adhesion on all interior surfaces, including wood. When dry, the film is more permeable to water vapor than conventional latex-base paints.

HERE'S HOW CARGILL EVT-50 SAVES UP TO 60% PRODUCTION TIME

CONVENTIONAL LATEX METHOD

- Cook Casein
- Emulsify Alkyd (Optional)
- Dissolve Preservative
- Disperse Thickener
- Grind Pigment
- Mix
- Package

EVT-50 METHOD

- Disperse Pigment
- Mix
- Package

You eliminate 4 steps!

Want more facts? Send the convenient coupon below for complete information on Cargill EVT-50. There is no obligation, of course.

Cargill, Inc.
Vegetable Oil Division
600 L3 Flour Exchange Bldg., Minneapolis 15, Minn.



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Company _____
Your Position _____
Street Address _____
City _____ Zone _____ State _____

**NEW
MATERIALS — EQUIPMENT**

BODIED LINSEED OILS

Light Color

"OKO" series varies in viscosity from Z to Z-9. Company recommends its use wherever highest quality, light color and low acidity are demanded. These oils are claimed to be unsurpassed in the following applications:

Aluminum paints: low acidity and non-reactive properties.

Kettle and varnish oils: good color and low acidity

Cold blend varnishes.

Calking compounds, automotive calks and tile cements: low acidity and excellent color and low staining.

Archer-Daniels-Midland Co., Minneapolis 2, Minn.

LAB HEATER

Features Quick Response

A family of fast-response heaters is said to have sturdy open wire heating elements that are supported with a minimum of refractory; hence, a minimum of thermal lag. Heaters respond immediately to control settings, according to the company.

"AllTemp" model is claimed to offer a comprehensive range of



FISCHER

temperatures from gentle warming to vigorous boiling. With maximum power output of 750 watts, 500 cc of water can be brought from a cold start to a boil in less than 10 minutes.

"StepTemp" model is designed for operations requiring less heat but a duplication of previous settings. The 550 watt heater is controlled in 7 steps.

"MonoTemp" model is a 550 watt heater free of any controls. It is small in size and light in weight for all those routine chores which "just require a lot of heat." Fischer Scientific, 717 Forbes St., Pittsburgh 19, Pa.

AUTOMATIC BURETTE

Simplifies Lab Work

An automatic burette, designed to simplify laboratory work, is supplied with a squeezable reservoir bottle for convenient burette filling with automatic finding of zero point.

The reservoir is attached to the burette by a heavy threaded polyethylene cap that is said to eliminate breakage hitherto due to the forcing of rubber stoppers in bottle necks.

"Royalton Press-O-Matic" burettes are supplied with .1 ml graduated intervals. 10 ml burettes are supplied with 500 ml bottles and 25 ml burettes are supplied with 1000 ml bottles. Meyer Scientific Supply Co., Inc., 1672 62 St., Brooklyn 4, N.Y.

**That's all it costs to
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- Makes your paint more acceptable to painters and home owners.
- Masks the odor in the can and while paint is being applied . . . as well as during — and after — the drying period.
- Does not affect drying time or color durability.
- Amazingly economical . . . use 1 lb. of Maskit #2 to 150 gallons of paint.

MASKIT #2 is equally effective in paints, lacquer thinners, varnishes and other similar types of products. Order a trial pound today!

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THE OLD AND THE NEW—These unretouched photographs tell the story. At the left is regular "low-dusting" PE, at right, Hercules' new nondusting grade.

HERCULES HAS REMOVED THE "DUST" FROM PE



Hercules' new nondusting technical PE is now available in full commercial quantities—at no increase in cost!

This new grade of Hercules® technical pentaerythritol has a more uniform particle size. There is no change in its carefully balanced chemical specifications, but through entirely new mechanical processing methods all fines and "smoke" are eliminated.

The result is greater safety, better working conditions (especially during charging), and more uniform reactions because fewer fine

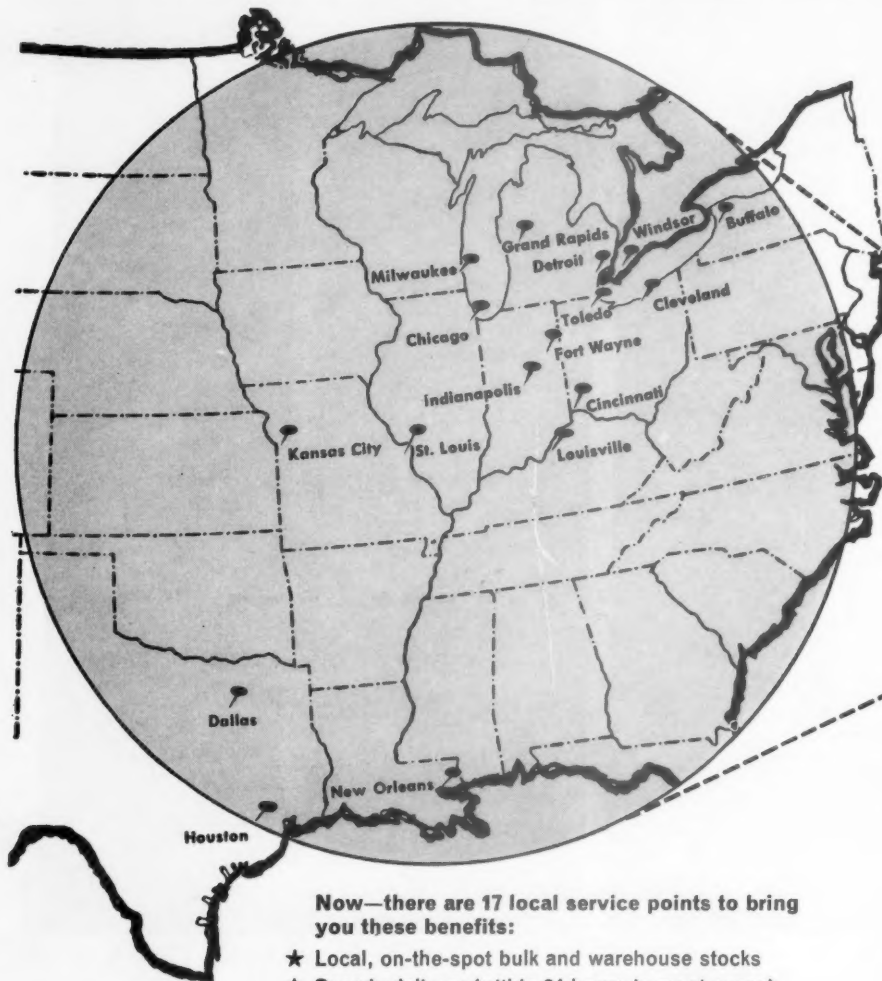
particles collect on the dome of the kettle and in the condensers.

Specify the new Hercules nondusting grade on your next PE order and see the difference for yourself. For further information, contact your nearest Hercules district sales office, or write:

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HERCULES POWDER COMPANY
INCORPORATED
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Now—there are 17 local service points to bring
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- ★ Fast, accurate technical information
- ★ Quality-controlled materials of leading producers
- ★ Broad line of products to meet your needs (in drums,
tank wagons, transports and tank cars)

Amoco Solvents & Chemicals Co.
4619 Reading Road—Elmhurst 1-4700
Cincinnati 29, Ohio

Buffalo Solvents & Chemicals Corp.
Box 73, Station B—Bedford 1572
Buffalo 7, New York

Central Solvents & Chemicals Co.
2540 West Flourney Street—SEeley 3-0505
Chicago 12, Illinois

Dixie Solvents & Chemicals Co.
Dixie Highway at Appleton Lane—Atwood 5828
Louisville 16, Kentucky

Hessier Solvents & Chemicals Corp.
1650 Luett Ave.—MEIrose 8-1361
Indianapolis 22, Ind.
Nelson Road East—Anthony 0213
Fort Wayne 8, Ind.

Missouri Solvents & Chemicals Co.
419 De Soto Ave.—GARfield 1-3495
St. Louis 7, Missouri
2522 Nicholson Ave.—Chestnut 3223
Kansas City, Missouri

Ohio Solvents & Chemicals Co.
3470 W. 140th St.—CLEARwater 2-1100
Cleveland 11, Ohio

Southern Solvents & Chemicals Corp.
1354 Jefferson Highway, P. O. Box 4067
Carrollton Station—Temple 4666
New Orleans 18, Louisiana

Texas Solvents & Chemicals Co.
8501 Market Street—Orchard 6683
Houston 15, Texas
2500 Vinson Street—FEDeral 5428
Dallas 12, Texas

Western Solvents & Chemicals Co.
6472 Selkirk Ave.—WALnut 1-6350
Detroit 11, Mich.
Central Ave. at Reynolds Road—JORDen 0761
Toledo 8, Ohio

Western Solvents & Chemicals Co. (Canada) Ltd.
1454 Crawford St.—CLEARwater 2-0933
Windsor, Ontario

Wisconsin Solvents & Chemicals Corp.
1719 South 83rd St.—GREENfield 6-2630
Milwaukee 14, Wisconsin

Wolverine Solvents & Chemicals Co.
1500 Century Ave., S. W.—CHerry 5-9111
Grand Rapids 9, Michigan



THE SOLVENTS AND CHEMICALS GROUP
2540 West Flourney Street • Chicago 12, Illinois

NEW MATERIALS—EQUIPMENT

STIRRER

Variable Type

A small, compact variable speed stirrer, Model #101, is available in the "T-line" made by the company.



TALBOYS

It is claimed that the model has features no other stirrer has—it is only 8" high (without paddle) and several used together can replace an expensive multiple stirring unit. It is strong enough to agitate thoroughly over 5 gallons of water, according to the company.

The stirrer has a stainless steel collet type chuck for true running and quiet, continuous duty Bodine motor. 1/100 hp for vibrationless operation. Variable speeds are possible by means of a rheostat with an off position to 5000 rpm. Calibrated dial for duplicating speeds. Talboys Instrument Corp. 13 Ackerman Ave., Emerson, N.J.

LINSEED GRINDING OIL

For One-Coat Jobs

"Archer 360" is said to be a special pure linseed grinding oil specifically designed for "one coat" house paints. It is also versatile and can be blended with other oils to improve their properties where better flow is desired, according to the company.

Product is fortified with a carefully polymerized oil for easy brushing. Flow has been described as "enamel like" at PVC as high as 40%. It is said to give excellent non-penetration and

outstanding uniform gloss at high pigment loadings. Company claims efficient wetting action reduces grinding time.

Analytical constants are as follows: Viscosity, Gardner-Holt—D-E; Color, Gardner '53 max.—9-11; Acid Values, Solids—3-5; Saponification Value—194-198; Iodine Value—155-165; Av. Lbs. Per. Gal. @ 25 C.—7.85 lbs. Archer-Daniels-Midland Co., Minneapolis 2, Minn.

ACRYLIC ESTER

In Granular Form

A polymeric acrylic-type ester in solid, granular form is called "Acryloid B-66 (100%)." The material may be dissolved or dispersed in

many types of organic solvents to produce clear, water-white solutions. It can be used to form tough, clear, color-stable protective coatings having excellent print resistance and resistance to hot, soapy water, according to the company. The coatings may be applied to metal, wood, fabrics and plastics.

Product is said to have good compatibility with several types of film formers. When properly blended, it is said to yield films of outstanding adhesion, hardness, flexibility, color stability, and fast drying properties. Rohm & Haas Co., Resinous Products Div., Washington Sq., Philadelphia 5, Pa.

MODICOL[®] VD

the Latex
Paint Thickener
you can POUR!

You'll lower production costs with Modicol VD, because you never have to "chop it off" when mixing—it pours easily.

You'll get more long-lasting and constant viscosity in your latex paints with Modicol VD. Tests show that a typical latex paint formulation, using Modicol VD, maintains its viscosity as follows:

INITIAL:	ONE DAY:	2 MONTHS:
71 K.U.	72 K.U.	71 K.U.

Because of its high molecular weight, Modicol VD contributes also to better brushability, aids suspension of pigments, and by insuring full water addition, helps control raw material cost. Another advantage is its pale yellow color.

You want all the facts on Modicol VD. Write today for Bulletin 36.

Nopco Chemical Co.
500 Industrial St.,
Harrison, N. J.

PLANTS: Harrison, N. J. • Cedartown, Ga. • Richmond, Calif.

**NEW
MATERIALS — EQUIPMENT**

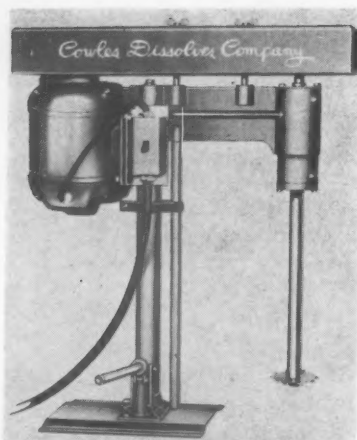
DISSOLVER

For Lab Work

A small-scale dissolver, designated "1-VT," is especially designed to speed work in laboratories, pilot plants and small batch production.

Company says the model requires very little material for test and experiment and all results can be fully reproduced in plant production on the larger sized company units.

Shafts and blades are of stainless steel to permit the processing of



MOREHOUSE-COWLES

highly corrosive materials. Only 30" high, the machine raises to 44" through a manually operated hydraulic lift. The 1 hp, single phase motors are either open drip-proof, totally enclosed or explosion proof. Morehouse-Cowles, Inc., 1150 San Fernando Rd., Los Angeles, Cal.

BODYING AGENTS

Thixotropic and Non-Thixotropic

"Nuvis-1" is a liquid viscosity modifier which is used primarily to obtain non-thixotropic viscosity increase without affecting flow or leveling properties of the paint. It is used primarily in alkyd systems but is also effective in oleo-resinous paints and vehicles and certain industrial finishes, according to the company.

"Nuvis-2" is a thixotropic bodying agent in powder form. It is used in gloss and semi-gloss enamels, and in alkyd flats to improve brushing, prevent sagging, retard pigment settling. Normal use calls for it to be added as part of the pigment grind. Nuodex Products Co., Inc., Elizabeth, N.J.

POLYETHYLENE GLYCOL

For Pigment Suspensions

Carbowax polyethylene glycol 20M, is now commercially available, in easy-to-use pellet form. The pellets are white and have a maximum diameter of 1/2". They flow freely from the shipping containers (75 lb. multi-wall bags) and dissolve readily in water in concentrations up to 50 per cent by weight.

Product is the newest in the company's series of polyethylene glycols. Its molecular weight is approximately 20,000, the highest of the series, and it has the binding, suspending, and lubricating properties typical of these compounds. Both the melt and solution viscosities are higher than those of other members of the series and films formed from it are stronger and harder.

It is suggested for use in colored pigment suspensions, aqueous-based inks, and other preparations where mild thickening action combined with suspending power is desired. Carbide and Carbon Corp., 30 E. 42 St., New York 17, N. Y.

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at Lowest Cost**

**WITCOBLAK
No.32
PELLETS**

**for
SUPERIOR BLACK PAINTS**

Witcoblaks are a full line of pigment blacks specially engineered for the paint industry.

Literature and samples on request *35 Years of Growth*

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For high quality
ALUMINUM PAINTS
 and economy in raw material costs ...
 formulate with

VELSICOL HYDROCARBON RESINS

AD-21
 and
AB-11-2

AVAILABLE IN EITHER SOLID OR RESIN SOLUTION FORM

- Provides high lustre and good leafing.
- Chemically neutral, assuring long leaf retentivity.
- Soluble in aliphatic and aromatic naphthas.
- Compatible with bodied vegetable and marine oils.
- Resistant to water, alkalis, aqueous acids and solvents.
- Fast drying and durable.

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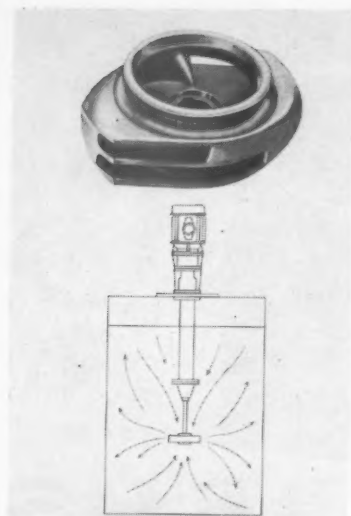


MIXER

Centrifugal Type

This Rheinhuette (German) mixer is said to work on the principle of a centrifugal pump. The effect is this: when the mixing tank is filled and the impeller is rotated rapidly, liquid is sucked from both top and bottom and then driven out radially at different velocities toward the sides.

The mixing impeller consists roughly of an oval shaped block with one circular opening at the top and another on the bottom, each connected by curved channels to slots on the sides. As the im-



NEUMANN & WEAVER

pellor rotates more rapidly, the suction at the top and bottom of the impeller increases, so that heavy liquids or solids are drawn up from the bottom of the container and lighter liquids are drawn down from the top. At the same time, centrifugal force increases and the liquid is impelled outward, creating a violent mixing agitation, at greater velocity.

Company recommends the Rheinhuette for mixing: colors; paints; tough lacquers; water and oil; etc. For field test reports write U. S. representative: Neumann & Weaver, Inc., 22-12 Raphael St., Fair Lawn, N. J.

ZINC STEARATE

Eliminates Grinding

A tool for the lacquer manufacturer, designed to eliminate grinding, is called "Plymouth Zinc Stearate SI-35."

The product is said to be added directly to the lacquer base without need of first grinding together with nitrocellulose and solvents in a mill. It is thoroughly dispersed by agitation and is then thinned with the balance of the formulation, according to the company. It is reported that with a sufficiently good rate of shear, high quality lacquers can be produced comparable to the finest ground lacquers.

Producer states that suspension, film clarity, adhesion to wood, cold check, Gardner-Holt stability and sanding characteristics are all excellent. M. W. Parsons-Plymouth, 59 Beekman St., New York 38, N. Y.

PENTAERYTHRITOL

Non Dusting

Nondusting type of technical grade pentaerythritol, developed by the company, is now available in full-scale commercial quantities. It is in the form of fine granules. Through refinements in the processing procedure, company says it can offer a product which assures maximum reaction efficiency, and minimizes dust hazards in handling.

Product is in the form of fine granules, essentially all between 12 and 200 mesh, with about seventy-five per cent through 20 and on 100 mesh, thus eliminating the disadvantages of both large and extra fine particles. Hercules Powder Co., Wilmington, Del.

Chats about Finishes

EMULSION PAINTS POSE NEW PROBLEMS

by A. R. OLSEN

Sales Manager,
Virginia Cellulose Department



Growing markets for emulsion paints pose many new production problems. Unlike oil-based paints, emulsion formulations contain many different ingredients, often in minor proportions, all of which are added to improve certain storage, application, and film properties of the coatings.

Emulsion paint formulators are finding many of the answers to their problems in Hercules® CMC (sodium carboxymethylcellulose), one of the most versatile and useful of water-soluble gums. Used in emulsion paints, CMC provides such advantages as excellent stability, simplified viscosity control, ease of solution, increased wet-edge time and improved pigment-grinding efficiency.

Widely used in polyvinyl acetate and acrylate systems, CMC can also be combined to advantage with solubilized protein in butadiene-styrene copolymer type paints. In all three applications it has proved an excellent thickening and stabilizing agent.

A. R. Olsen



Virginia Cellulose Department
HERCULES POWDER COMPANY

926 Market St., Wilmington 99, Del.

1C55-3

*An old hand
helps a new product*



"LIQUID CARBONIC CO₂ HELPS KEEP OUR PRODUCTION COSTS DOWN..."



says W. B. Winkler,
Factory Manager,

T. F. WASHBURN COMPANY,
Chicago, Illinois

"In producing BURNOK, the thixotropic vehicles which make the revolutionary new dripless paints possible, Red Diamond CO₂ helps us cut costs and serves us in many important ways," reports Mr. Winkler.*

CO₂ Can Help You, Too. This versatile gas is now aiding leading paint manufacturers in more than seven important ways—from cooking to packaging.

Get The Facts And Figures—send for LIQUID's report prepared specially for the paint industry. Photos, diagrams, costs and process details give you the complete story on how CO₂—combined with LIQUID know-how—can be of tremendous advantage in your operation. Your complimentary copy is waiting for you. Simply mail the coupon below.

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A fact-filled report on how CO₂ can cut your costs and improve your product. Mail the coupon today.



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Compressed Gas Division
3128 South Kedzie Ave., Chicago 23, Ill.

Please send me your report on "The Use of CO₂ in Paint, Varnish and Other Alkyd-Type Resin Manufacturing."

Name and Title _____

Company _____

Address _____

City _____ Zone _____ State _____

PERSONNEL CHANGES

AMERICAN CYANAMID

Dr. William H. Bowman has been appointed Assistant General Manager of the Organic Chemicals Division, it was announced by K. C. Towe, President.

He has been associated with Jefferson Chemical Co., Inc., for the past ten years and since 1951 has been a Vice President for Jefferson, which is jointly-owned by American Cyanamid Co. and The Texas Co.

EMERY INDUSTRIES

Dr. Karl T. Zilch has been appointed to the research staff, it was announced by Dr. R. G. Kadesch, Director of Research.

Dr. Zilch will be directly connected with the Fatty Acids and Esters Laboratory, under the direction of V. J. Muckerheide. His background with the Oil and Protein Div. of the Northern Utilization Research Branch of the U.S. Department of Agriculture in Peoria, Ill., fits in with the company's diversification into special fatty acids and their derivatives.



K. T.
Zilch

GOODYEAR

Charles H. Smith has been assigned as a field representative for the Chemical Division.

He will provide sales and service on Plio-lite resins and latices to the paint industry in the Philadelphia territory, according to an announcement made by C. O. McNeer, General Sales Manager of the Division.



C. H.
Smith

Mr. Smith has been associated with the paint industry for the past six years, and in his previous position was technical director for the Kurfees Paint Co. of Louisville, Ky. He is a member of the Louisville Paint & Varnish Production Club, and until recently was chairman of its Technical Committee. He also holds membership in the American Chemical Society and the American Society for Testing Materials.

PITTSBURGH PLATE GLASS

George B. Andersen and **George W. Williams** have been appointed regional Sales Supervisors for the Distributor Division of the Ditzler Color Division in Detroit, Mich., it was announced by Neil A. Fleming, Ditzler Sales Manager.

Prior to their appointments, Mr. Andersen served as a salesman for the Pittsburgh territory since 1937, while Mr. Williams had been the Virginia-North Carolina sales representative since 1941.

GLIDDEN

Frank Casso, Jr. has been named Manager of laboratory and manufacturing of the International Business Department, it was announced by Andrew J. Duncan, Manager of International Business.

In this capacity, he will be responsible for all manufacturing and laboratory problems in connection with licensee and affiliate operations.

Mr. Casso joined the company in 1951 as a laboratory technician in the Mississippi region. Subsequently, he was promoted to Production Manager—"Spred Products"—a position he held until his recent appointment. He will make his headquarters in Cleveland.

O'BRIEN

Robert W. Heald has been appointed sales representative for the Kansas City area, it was announced by R. P. Cook, General Sales Manager. He will be responsible for the servicing of present company dealers as well as the development of new accounts. He formerly worked for the Martin Senour Co.



SOME MONEY-SAVING FACTS FOR MANUFACTURERS OF PAINTS AND ENAMELS...

REICHARD-COULSTON IROX Yellow "ED" Iron Oxides are *low-bulking*. Compared to high-bulking yellow oxides, this feature helps cut your mixing time up to 50%! Equally important: with **IROX Yellow Oxides**, you can increase your paste mixer loads as much as 100%! In addition, **IROX "ED"** Yellows reduce wetting time as much as 80% by test.

Decreased mixing time, increased mixing loads, faster wetting action mean greater production volume. You reap the benefits through lower overhead, reduced labor costs.

Prove to yourself what **REICHARD-COULSTON IROX Yellow "ED"** Iron Oxides can do for you. For free laboratory samples, write today.



Reichard-Coulston, Inc.

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DOW LATEX MAKES OUTSTANDING EXTERIOR MASONRY PAINTS

*Masonry paints based on
Dow Latex (Styrene-Butadiene)
proved on thousands of
paint jobs*

Exterior paint formulations based on Dow Latexes (Styrene-Butadiene) have stood the tests of time—in field and laboratory. They've endured three to five years of rough weathering with good film integrity. Exterior paints made with a Dow Latex dry to a tough, impermeable film, have unusual durability. They're particularly easy to apply, dry quickly and can be recoated in a minimum of time.

Realizing that synthetic material is one of the keys to a bright future for the paint industry, Dow began a research and development program on latexes long ago and has done over five years of exterior formulation research on Dow Latex 512-K alone! As a result, Dow offers you a wealth of information for developing exterior paints made with Dow Latex. Your nearest Dow sales office will tell you how Dow research laboratories are made available to your personnel.

If you are looking forward to modernizing your paint line with exterior paints made with Dow Latex, now's the time to contact Dow. Dow also makes available a bulletin "Dow Latex 512-K for Exterior Masonry Paints". Write to Plastics Sales, Department PL521E THE DOW CHEMICAL COMPANY, Midland, Michigan.

you can depend on DOW PLASTICS



NATIONAL LEAD

W. H. Woods has been appointed General Sales Manager of the Titanium Pigment Corp., succeeding **K. W. Ericson**, who has retired after twenty-five years of service. **Earl W. Diener** was appointed Assistant General Sales Manager.

Harold L. Jungmann was appointed Sales Manager, eastern district, of Titanium Pigment Corp. This sales district consists of the metropolitan New York and New England areas.

Mr. Ericson started with Titanium Pigment Corp. in 1930 as a sales representative. In 1940, while in charge of sales in the Chicago area, he was appointed western Sales Manager. He became General Sales Manager in 1950. Mr. Ericson is past president of the



W. H. Woods



K. Ericson



E. W. Diener

Chicago Paint, Varnish and Lacquer Association.

Mr. Woods began his career with the company in 1930 with the Atlantic Branch. He was transferred to Titanium Pigment Corp. in 1937 as Assistant Credit Manager, becoming Credit Manager in 1940. He was appointed eastern Sales Manager in 1948 and in 1950 he was transferred to Chicago as western Sales Manager.

Mr. Diener has been eastern Sales Manager since 1953. He joined the company in 1937 as a Titanium Pigment representative in the Philadelphia territory. In 1943 he was placed in charge of the New England territory and in 1950 he was appointed a district Sales Manager.

Mr. Jungmann has been assistant to the General Sales Manager of Titanium Pigment Corp. since 1948. He has been with the company since 1924, starting at the St. Louis plant. He was transferred to the sales department, and in 1940 moved to Chicago as office manager of the western sales office of Titanium Pigment.

INTERCHEMICAL

Allen Leroy Emptage has been appointed head of the central Engineering Department in New York. He succeeds **Richard G. Knowland**, who established the department in 1948 and who will continue with it on a part-time consulting basis.



A. L. Emptage

Mr. Emptage was appointed Plant Engineer for the Textile Colors Division in 1945 and worked on process layout. He supervised the installation of equipment, in the present plant at Hawthorne, N. J. Since the plant's completion he has installed many new processes.

GLIDDEN

Glenn M. Davidson has been appointed Manager of Process Development, it was announced by Dwight P. Joyce, board chairman and President.

Formerly General Manager of market development for the company's Chemurgy Div. in Chicago, Mr. Davidson now will work from company headquarters in the Union Commerce Building, Cleveland.

He will assist Paul E. Sprague, Vice President of the company and General Manager of the Naval Stores Div., and Harvey L. Slaughter, Vice President of the company and General Manager of the Durkee Famous Foods Div.

NOW You Can Stop Pressure Build-Up in Aluminum Paints With SYLOID® AL-1

Tests conducted by the Aluminum Research Laboratories of Aluminum Company of America "... indicate that SYLOID AL-1, when used in concentrations up to 1% based on total weight of paint, effectively retards pressure development in ready-mixed varnish base aluminum paint containing moisture in concentrations up to 0.5%."

This problem of pressure build-up in ready-mixed aluminum paints has long been a serious one. Now this pressure development can be stopped. The leaf stability of the paint is not affected and the drying rate is not retarded.

For complete information on SYLOID AL-1, including results reported by Aluminum Research Laboratories, write

Progress Through Chemistry

DAVISON CHEMICAL COMPANY

Division of W. R. Grace & Co.
Baltimore 3, Maryland

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ARCHER-DANIELS-MIDLAND

Paul McClay has been elected an Assistant Vice President, it was announced by Thomas L. Daniels, President. He has been in charge of sales for the New York office and six Atlantic seaboard states since April 1953. He will continue to headquarter in New York.

Mr. McClay has been associated with the protective coatings industry since 1921. When he joined ADM in 1945, he was placed in charge of the engineering and construction of open-kettle bodying plants at Minneapolis, Ganado, Texas, and Fredonia, Kansas. He managed the Kenedy, Texas, plant from August 1946 to July 1947. He returned to Minneapolis in 1947 as midwest sales representative for drying oils and paint vehicles, holding this position until 1953.

VELSICOL

M. L. Davis has been assigned the states of Kansas, Oklahoma, Nebraska, and Colorado for the Industrial Sales Division, according to an announcement by John F. Kirk, Vice-President and Sales Director.

He will also handle industrial sales for the Kansas City, Missouri, area where he will make his headquarters. Prior to this, he was a sales engineer for Nielsen & Fryer, manufacturers' representatives for chemical controls equipment in the Chicago area.

MARBON

John D. Serpico has been appointed Assistant Manager of Technical Service, it was announced by D. M. Pratt, Vice President and Sales Manager of Marbon Chemical, Division of Borg-Warner.

Mr. Serpico's background includes experience with Rodic Chemical & Rubber Corp. as Development Manager; with Economy Faucet Co. as Plant Manager; and with Allis Rubber Co. as Chemist. In addition, he has had compounding experience in Army and Navy Specification, Automotive, printing rolls, platens, rubber novelties and toys, manufacturing plant specification, vinyl flooring and tiling, plus all types of rubber to metal bondings.

DIAMOND ALKALI

Robert M. Hopkins and Richard J. Jones have joined the southeastern sales staff as representatives, according to an announcement by R. B. Perry, Memphis Branch Sales Manager.

Mr. Hopkins has been assigned to central and southern Florida. Mr. Jones will cover northern Florida and southern Georgia.

At the same time, it was announced that Charles P. Egolf, who has represented the company in Florida since August, 1953, has been transferred to Memphis to take over sales responsibilities relinquished by Martin F. Wilkerson, recently promoted to Manager of the branch sales office at Houston, Texas.

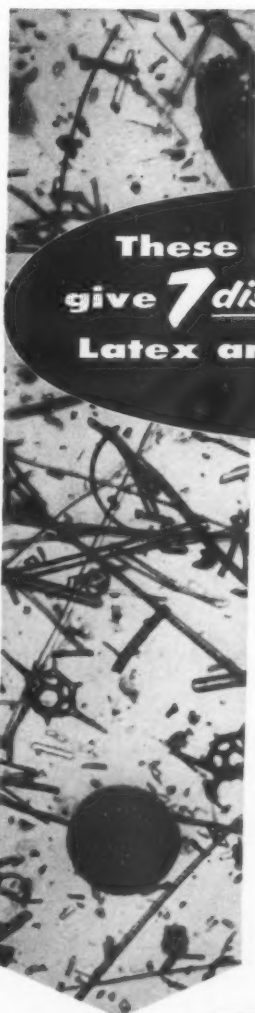
GORMAN-RUPP

Robert L. Sears has been named South-Central District Representative, according to an announcement from K. H. Cadigan, Vice President in charge of Sales.



R. L. Sears

He joined the company last year after seven years experience in the pump industry. He was formerly associated with the F. E. Myers & Bros. Co., Ashland. Mr. Sears will cover the lower Mississippi Valley and Delta areas. He will make his home in Memphis, Tenn.



These Dicalite particles
give **7** distinct advantages in
Latex and Resin-Emulsion
Paints

1. FLATTING EFFECT. Paint authorities agree that sheen control is best accomplished with diatomite—and Dicalite inert pigments are top-quality diatomite.
2. AIDS EMULSION STABILITY and

3. REDUCES "CREAMING" OF EMULSION due to tremendous surface area and high absorptive capacity of Dicalite particles. Polymers "grip" better.
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5. STRENGTHENS PAINT FILM because of the lattice-like structure formed by interlacing Dicalite particles.
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For further information, write to Dicalite Division, Great Lakes Carbon Corporation, 612 So. Flower Street, Los Angeles 17, California

Dependable **Dicalite**
GLC
GREAT LAKES
DIATOMACEOUS MATERIALS
1930-1955
25
YEARS

BAKELITE

Gerald A. Ward has been appointed General Manager of Distribution. He will be responsible for packaging and methods of packing company plastics, order entry, distribution, warehousing and inventories. Mr. Ward, who was previously superintendent of services at the plant in Bound Brook, N. J., joined the company in June, 1925, at Carbide and Carbon Chemicals Co. in South Charleston, W. Va. Bakelite Co. is a Division of Union Carbide and Carbon Corp.



G. A.
Ward

FISCHER & PORTER

Robert A. Stern, Louis H. Aricson, Nathaniel Brewer, and Edward J. Querner have been promoted to Vice Presidents in charge of their respective divisions. They were formerly managers.

Stern, Vice President of the Data Reduction & Automation Div. developed the F & P Automatic Logger, a packaged data reduction system which integrates with industrial instrumentation for such functions as automatic process control, computation, statistical analysis, and cost accounting.

Aricson, Vice President of the International Div., joined the company in 1951 as manager of the Export Dept.—recently renamed the International Div.

Brewer, Vice President of Research, formerly was Director of Research. He joined the firm in 1942 as chief engineer.

Querner, Vice President of Manufacturing, joined the company in 1950 as a production engineer. Later, as Manager of Quality Control, he instituted a program which substantially decreased the firm's rejection rate.

UNION CARBIDE

Robert J. Musser has been appointed Assistant Manager of the Market Research Department, Carbide and Carbon Chemicals Co., a Division of Union Carbide and Carbon Corp., according to an announcement by John A. Field, Vice-President of the company. He will assist Dr. A. H.

Tenney, Manager of the Market Research Department, in surveys of future markets for established chemicals as well as for new chemicals coming from the research laboratories.

Mr. Musser joined the company in 1947. After a training period he joined the corporation's purchasing department in New York. For the past year and a half he has been Assistant Division Manager of Purchases with primary responsibility for organic chemicals.

Roland Voorhees has been appointed Associate Director of Development for the Chemicals and Plastics Divisions of Union Carbide and Carbon Corporation according to an announcement by H. S. Bunn, Executive Vice-President of the corporation.

His headquarters will be in New York although a major portion of his time will be spent in maintaining technical contacts with the European chemical industry. He will be primarily concerned with the development of new syntheses and production processes.

Mr. Voorhees joined Carbide and Carbon Chemicals in 1935. In 1936 he joined the Engineering Dept. at South Charleston, W. Va., and in 1953 he was appointed Associate Director of Engineering. One of his most recent tasks has been to supervise the engineering work for the new Oxo plant at Texas City, Texas.

M. W. Duncan has been named Assistant District Sales Manager of the Kansas City District and **J. R. Retter** Assistant District Sales Manager of the Detroit District, according to an announcement by E. E. Fogle, Vice President of the company.



R. J.
Musser

VULCAN PAILS for Your Paints

Leading manufacturers of Paint, Varnish and Lacquer have come to DEPEND upon the high quality of VULCAN Pails and Drums.

Vulcan Steel Containers are made in all practical sizes with a wide selection of pouring nozzles and spouts, with Hi-Baked Interior Linings, and Colorful Lithographing.

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Vulcan Steel Container Company is known for its fast flexible "personalized" service. Call or write Vulcan for all of your Pail and Drum needs!

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ALABAMA

DEVOE & RAYNOLDS

James L. Hobart has been appointed Sales Manager of the Devoe



J. L. Hobart

and Wadsworth Howland Trade Sales Divisions, it was announced by J. Harold Kolseth, Executive Vice President, Devoe & Reynolds Co., Inc. He will make his office in Louisville, Kentucky.

Prior to this promotion he had been Assistant to the Vice President and had served as Assistant District Manager in Chicago. Before joining the company he had been sales manager of an electrical equipment company.

SUN CHEMICAL

Raymond S. Kerin has been appointed Sales Manager of the Trade Sales Division of



R. S. Kerin

A. C. Horn Co., a division of Sun Chemical Corp., Alvin S. Baer, Manager of the Horn Divisions, has announced.

He will direct the merchandising, promotion and sales of interior and exterior architectural paint finishes. This has been highlighted most recently by the production of the new "Colorage" paint finishes to coordinate with the General Electric Company's "Mix-or-Match" colored kitchen appliances program.

VAN AMERINGEN-HAEBLER

Sydney N. Stokes has been named to the new post of Assistant to the Executive Vice President. He will assume his new duties August 1, according to Charles P. Walker, Executive Vice President.



S. N. Stokes

Mr. Stokes was Regional Sales Manager for Merck & Co., Inc. in New York and has been associated with Merck for the past twenty-one years in various executive capacities in sales, sales promotion, distribution and administration. He brings to the company a broad experience in the fields of pharmaceutical, cosmetic and industrial chemicals and nutritional products for the food and beverage industries.

ADELPHI PAINT & COLOR

Bernard N. Walker, George E. Driscoll and William F. Naughton have been appointed sales representatives in the New England Area, it was announced by Bernard N. Cullen, Sales and Advertising Manager of the company and its Baer Bros. Paint & Varnish Div.

These appointments now add up to a total of eight new sales representatives which is part of a heavy expansion program designed to strengthen the company's position in the national market.

NEWPORT INDUSTRIES

Charles Drubel has been appointed Manager of Chicago branch office, according to an announcement from R. J. Spitz, Vice President of Sales.

This office in addition to handling local sales, has supervision over company distributors in the midwestern states and also offers technical services to customers throughout the territory.

Mr. Drubel joined the company in Technical Sales and Service in 1948. He was associated with both the Cincinnati and New York offices before coming to Chicago in 1953.

VARCUM CHEMICAL

J. S. Stanford has been appointed Vice President. He was formerly Assistant to the President. Before joining the company, he was General Works Manager for Borden Company's Chemical Div., and General Superintendent of Monsanto Chemical Company's Plastic Div.

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THIXCIN

MULTI-PURPOSE PAINT ADDITIVE

has gained **95%** trade acceptance

HERE ARE THE 9 REASONS FOR THIXCIN'S AMAZING SUCCESS

1. Eliminates sag
2. Prevents pigment settling
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Use it in any Aliphatic Paint System

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Company _____
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City _____

Industrial Division
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AMERICAN CYANAMID

Louis A. Melsheimer has been appointed Director of Technical Service for the Pigments Division. He joined the company in 1944 as Manager of the Technical Service Laboratory, Pigment Department, Calco Chemical Division. In 1952 he was appointed Manager of Technical Promotion for the Pigment Department.



L. A. Melsheimer

Mr. Melsheimer is a member of the American Chemical Society, American Society for Testing Materials, New York Paint & Varnish Production Club, and a Fellow of the American Institute of Chemists.

SHERWIN-WILLIAMS

Joseph Gaudier has been appointed Manager of the Advertising Department, Export Division, it was announced by Robert R. Holm, Director of Foreign Sales.

Prior to joining the company he was export advertising and promotion manager for the Lily-Tulip Cup Corp. He succeeds **R. D. Verson** who has become associated with Sherwin-Williams Venezolana C. A., Valencia, Venezuela.

CLIMAX MOLYBDENUM

Benjamin H. Danziger has been appointed Manager of catalyst and pigment development in the Chemical Development Division it was announced by Dr. Charles H. Kline, Manager of the division. He will study and develop applications of molybdenum in catalysts and pigments.

He has been with the company since 1952, recently serving as a chemical development engineer. Before joining the company, he was with the Ruberoid Co. as a production supervisor.

WITCO CHEMICAL

Max A. Minnig and **John A. White** have been elected Directors of the Witco Chemical Co., Ltd., of London (and Manchester), England, it was announced by Robert I. Wishnick, Chairman of the Board of Directors of Witco Ltd., and President of the associated American firm.

Mr. Minnig successively has been Sales Manager for rubber chemicals, Director of Sales, as well as Vice President since joining the American company in 1946.

Mr. White has concentrated on the sale of carbon black to the rubber, printing ink and paint industries in England and on the continent.



Quality Makes the Difference

For quality and uniformity of performance, **A. Gross' SOYA BEAN FATTY ACIDS** exceed the demands of alkyd resin producers for

1. Excellent heat resistance
2. Light coloration
3. High iodine value
4. Low unsaponifiable content

When used in soaps, **GROCO 27—REGULAR SOYA BEAN FATTY ACIDS** mean higher yields, better colors, fewer formula changes. The quality of these **SOYA BEAN FATTY ACIDS** will make the difference in the quality of your product.

Send for our new catalog "Fatty Acids In Modern Industry"

DISTILLED SOYA BEAN FATTY ACIDS

	GROCO 27 Regular		GROCO 28 Alkyd Grade	
	25°—30°C.		25°—29°C.	
Titre	4	8	1	3
Color 5 1/4"	—	—	—	—
Lovibond Red	20	40	8	20
Color 5 1/4"	—	—	—	—
Lovibond Yellow	3	5	2	4
Color Gardner 1933	—	—	—	—
Color Gardner 1933—after S. & W. Heat Test	—	—	5	8
Unsaponifiable	3.0% max.	—	1.5% max.	—
Saponification Value	196	202	198	203
Acid Value	195	201	197	202
Iodine Value (WIJS)	123 max.	—	125	135



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A. Klobe



S. Aronoff

CARGILL

Arthur Klobe, Sam Aronoff, Sam Gutkin, Max Kantor and Dr. A. R. Baldwin have been given executive appointments in the company's Vegetable Oil Div., it was announced by Fred M. Seed, Executive Vice President.

Mr. Klobe has been appointed Sales Promotion Manager. His duties will include supervision and administration of company Oil Sales Offices. In addition, he will establish sales training programs, and be responsible for advertising and general sales promotion.

Mr. Aronoff has been named Manager of the flax account, which includes the purchase of flax, sales of linseed oil meal and other linseed oil products.

Mr. Gutkin has been named Sales Manager for resins and specialties in the Eastern areas serviced by the Philadelphia plant. He will also remain in charge of resin product development and Technical Sales Services in the Minneapolis area.

Mr. Kantor has been appointed Director of Technical Oil Sales and Services for linseed and soybean oils. He will also work with the General Superintendent of Oil Division Plants, on refinery production and quality control.

The Minneapolis Oil Division Product Development Laboratory has been placed under the administration of the General Research Dept. under Dr. Baldwin. He will also supervise activities and provide technical assistance to the Carnegie and Philadelphia Product Development Laboratories.

AMERICAN CYANAMID

T. M. Wennergren, since 1948 Assistant to the Advertising Manager,



T. M. Wennergren

Plastics and Resins Division, has been appointed Advertising Manager, it was announced by R. A. Hoekelman, General Manager of the Division. He succeeds H. W. Cyphers, Jr., who resigned. A graduate of Agricultural College, Mr. Wennergren became associated with the company in 1947.

GENERAL ELECTRIC

Jerome T. Coe has been appointed Sales Manager for the Silicone Products Department, according to an announcement from T. C. Ohart, department Manager of Marketing.

He joined the company in Madison, Wis., in 1942 as a chemical engineer in the research laboratory. In 1946, he transferred to the Chemical Division. Since 1947, he has been at the silicone plant in Waterford, N. Y., where in 1952, he was appointed Manager—Sales Development. This position preceded his present appointment. He will continue to headquarter in Waterford.

JONES & LAUGHLIN

David O. Merrill has been appointed Manager of Sales for the Container Division with headquarters in the

Chrysler Building, New York City.

He succeeds K. M. "Jerry" Lyons, who is retiring. He will remain on the staff as Consultant to C. K. Hubbard, General Manager of the Container Division.

Mr. Merrill has been Manager of Pail Sales for the Container Division since he joined the company in 1950. In his new post he will supervise the nation-wide distribution of galvanized ware, steel shipping pails, and steel drums.

BORDEN

Harry W. Cyphers, Jr. has joined the Chemical Div. as Sales Manager of its Durite Dept. in Philadelphia, according to Herbert H. Clarke, Jr., Executive Vice President of the division.



IT'S EASY TO KISS A
GIRL ONCE . . . *But*
TO BE INVITED BACK
FOR MORE IS AN ART

The same thing is true of
COMPOUND XYZ. A user can be persuaded
to try a product once. But to get him to use
it again and again he must find it better than the rest.

TROYKYD COMPOUND XYZ

(The Most Effective Colloidal Dispersing Agent)

will help you create a product that the paint user will love to use.

Because it...

- ☛ **STOPS SETTLING** — it is at least twice as effective as aluminum stearate — at a lower cost.
- ☛ **IMPROVES VISCOSITY** — even in low pigmented alkyd finishes.
- ☛ **ELIMINATES SAGGING** — effective where other types don't work — such as alkyds.
- ☛ **REDUCES FLOODING, FLOATING AND SILKING** — without any surface active properties, such as you might get from silicones
- ☛ **IMPROVES BRUSHABILITY** — in all trade sales paints.
- ☛ **IMPROVES NON-PENETRATION AND COLOR UNIFORMITY** — in flat alkyds and other coatings.
- ☛ **ELIMINATES STAINING** — in caulking compounds and putties.

Write for free sample and further information.

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PATENTS

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired (to foreign countries \$1.00 per copy) to the publisher.

Stabilizers For Vinyl Chloride Resins

U. S. Patent 2,707,178. Joseph Edward Wilson, New Brunswick, N. J., assignor to Union Carbide and Carbon Corporation, a corporation of New York.

A composition of matter comprising

a chlorine-containing polyvinyl resin and from 0.01% to 5% by weight of the resin of a polyester condensation product of an aliphatic mercapto alcohol and a dicarboxylic acid, said dicarboxylic acid having the carboxylic acid radicals thereof joined by a hydrocarbon group.

Silicone Resins Having Phenyl And Methyl Groups Attached To Silicon

U. S. Patent 2,706,190. Harold A. Clark, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan.

As a composition of matter a siloxane resin having the general formula



wherein R is a monovalent hydrocarbon radical selected from the group consisting of methyl and phenyl radicals

and n has an average value of 1.25 to 1.40 inclusive, said resin consisting essentially of 15 to 37.5 mol per cent $CH_3SiO_{3/2}$ units, 20 to 38 mol per cent of diorganosiloxane units selected from the group consisting of $(CH_3)_2SiO$ and $C_6H_5(CH_3)SiO$ units, there being no more than 15 mol per cent $(CH_3)_2SiO$ units, 25 to 45 mol per cent $C_6H_5SiO_{3/2}$ units and 2 to 15 mol per cent $(C_6H_5)_2SiO$ units.

Texture Paint

U. S. Patent 2,699,401. Frank X. Grossi, St. Louis, Mo., assignor to The Reardon Company, St. Louis, Mo., a corporation of Missouri.

Texture paint containing a major proportion of bodying materials, pigment and filler, and a minor proportion of binder consisting essentially of starch and water-soluble cellulose ether.

Epoxy Ester

U. S. Patent 2,709,690. Eric S. Narra-cott, Worcester Park, England, assignor to Shell Development Company, Emeryville, Calif., a corporation of Delaware.

A process of preparing a mixed ester which comprises heating and esterifying glycidyl polyether of a polyhydric phenol having a 1,2-epoxy equivalency greater than 1.0 and containing alternating glyceryl radicals and aromatic hydrocarbon radicals of the phenol united in a chain by ether oxygen atoms with glyceryl radicals at each end thereof, first with a drying oil fatty acid in amount of about 25% to 65% of the equivalent quantity needed to esterify completely the polyether, said heating being continued with removal of formed water until the ester product has an acid number of less than 10 and is devoid of epoxy groups, and then further esterifying the ester product as a solution in aromatic hydrocarbon solvent with about an added 1% to 3% of orthophosphoric acid based upon the weight of said ester product.


Polyamide-Epoxy Resin Solution

U. S. Patent 2,707,708. Harold Witt-coff, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware.


A stabilized organic-solvent solution of an epoxy resinous material containing terminal epoxy groups and being derived by the reaction of a bisphenol with a material selected from the group consisting of glycerol dichlorhydrin and epichlorhydrin, and a polyamide derived from polymeric fat acids and diethylene triamine, the solution being stabilized by means of from 1-30% of formaldehyde based on the weight of the polyamide.

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increasing customer
service and
satisfaction ... part
of the new
concept of
business
responsibility
at NC.



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CALENDAR OF EVENTS



Aug. 29-31. Joint Meeting of American Soybean Assoc. and Nat'l Soybean Processors Ass'n., Netherlands Plaza, Cincinnati, Ohio.

Sept. 11-16. Fall Meeting of Div. of Paint, Plastics and Printing Ink Chemistry, ACS, Minneapolis, Minn.

Oct. 3-5. 33rd Annual Meeting, Federation of Paint and Varnish Production Clubs and 20th Paint Industries' Show, Hotel Statler, New York City.

Oct. 31-Nov. 1-2. 67th Convention of National Paint, Varnish and Lacquer Assoc., Shoreham and Sheraton-Park Hotels, Washington, D. C.

Production Club Meetings

Baltimore, 2nd Friday, Park Plaza Hotel.

Chicago, 1st Monday, Furniture Mart.

C.D.I.C., 2nd Monday.

Cincinnati — Oct., Dec., Mar., May, Hotel Alms.

Dayton — Nov., Feb., April, Suttmillers.

Indianapolis — Sept., Claypoll Hotel.

Columbus — Jan., June, Fort Hayes Hotel.

Cleveland, 3rd Friday, Harvey Restaurant.

Dallas, 2nd Thursday, No Fixed Place.

Detroit, 4th Tuesday, Rackham Building.

Golden Gate, 3rd Monday, El Jardin Restaurant, San Francisco.

Houston, 2nd Tuesday, College Inn.

Kansas City, 2nd Thursday, Pickwick Hotel.

Los Angeles, 2nd Wednesday, Scully's Cafe.

Louisville, 3rd Wednesday, Seelbach Hotel.

Montreal, 1st Wednesday, Queen's Hotel.

New England, 3rd Thursday, University Club, Boston.

New York, 1st Thursday, Brass Rail, 100 Park Ave.

Northwestern, 1st Friday, St. Paul Town and Country Club.

Pacific Northwest, Annual Meetings Only.

Philadelphia, 3rd Wednesday, Engineer's Club.

Pittsburgh, 1st Monday, Fort Pitt Hotel.

Rocky Mountain, 2nd Wednesday.

St. Louis, 3rd Tuesday, Forest Park Hotel.

Southern, Annual Meetings Only.

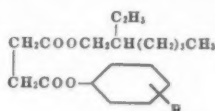
Toronto, 3rd Monday, Diana Sweets, Ltd.

Western New York, 1st Monday 40-8 Club Buffalo.

Vinyl Chloride Polymers

U. S. Patent 2,709,691. Joachim Dazzi, Dayton, Ohio, assignor to Monsanto Chemical Company, St. Louis, Mo., a corporation of Delaware.

A resinous composition comprising a vinyl chloride polymer plasticized with an ester having the general formula



U. S. Patent 2,709,691

in which R is an alkyl radical of 9 carbon atoms.

Unsaturated Hydrocarbon Polymers

U. S. Patent 2,709,695. Francis T. Wadsworth, Dickinson, Tex., assignor, by mesne assignments, to Pan American Refining Corporation, Texas City, Tex., a corporation of Texas.

A process for making a resin from a normally liquid mixture of unsaturated hydrocarbons obtained in the pyrolysis of a normally gaseous hydrocarbon having at least two carbon atoms in the molecule at a temperature between about 1300 and 1550° F. and a contact time between about 0.2 and 5 seconds, which comprises contacting said normally liquid mixture of unsaturated hydrocarbons with above about 0.5 percent by weight of boron trifluoride in the substantial absence of water and organic oxygenated compounds at a temperature above about 500° F., whereby a portion of said unsaturated hydrocarbons is converted into a thermoplastic resin, removing said boron trifluoride from the reaction product at a temperature above about 500° F., and removing low-boiling components from the reaction product, whereby a thermoplastic resin is obtained having an iodine number below about 80, light color, and superior susceptibility to decolorization.

LANCASTER, ALLWINE & ROMMEL REGISTERED PATENT ATTORNEYS

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Patent Practice before U. S. Patent Office. Validity and Infringements Investigations and Opinions.

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Advance Info



Surface Active Agent Advawet #33- Tops for Emulsion Paints

A non-ionic, 100% active, surface active agent, ADVAWET #33 is tailor-made for the non-ionic emulsifying and wetting-out of practically all types of emulsion paints.

Developed by ADVANCE, and recommended by leading manufacturers, ADVAWET #33 is —

- Soluble—in water in all proportions, most organic solvents and oils.
- Compatible—with soaps, sulfonated oil and synthetic detergents.
- Stable—against metal salts, acids and alkalis.
- Practically Non-Foaming.

Samples and complete data on ADVAWET #33 are available. Write for yours today.

ADVANCE

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NEWS

Barrett Div. Buys Land

Purchase of an additional 11.5 acres of land adjoining its Ironton, Ohio plant was announced by T. J. Kinsella, President of Barrett Division, Allied Chemical & Dye Corp.

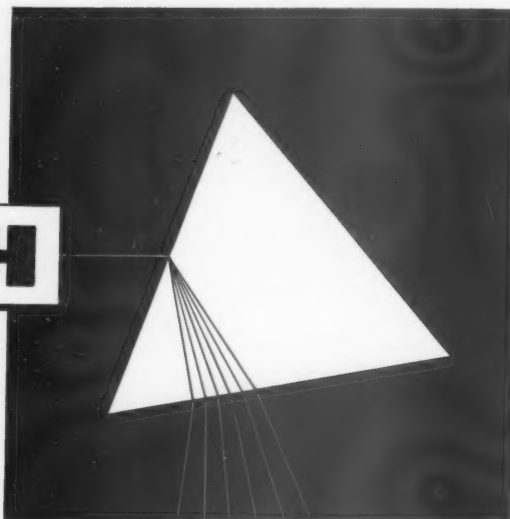
The acquisition will provide room for expansion of the plant's manufacturing facilities. Barrett produces a wide line of coal-tar chemicals at Ironton, including phthalic anhydride, ect.



Special technical scholarship is awarded to Robert Briscoe (right), by Arthur Klobe, Sales Promotion Manager of the Vegetable Oils Div. of Cargill, Inc. Briscoe is Technical Director of the Great Western Paint Mfg. Co., Kansas City. He will attend the Fifth Advanced Paint Refresher Course given July 11-22 by Dr. Wouter Bosch at the North Dakota State Agricultural College at Fargo.

R-B-H

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DEVELOPMENT

R-B-H puts pigments in their Sunday-go-to-meeting best. Optimum dispersion and thorough wetting offer these characteristics:

Carbon blacks . . . maximum jetness
Iron blues . . . strong and clean
Reds and maroons . . . brilliant with deep undertones
Whites . . . clean, sharp gloss

R-B-H . . . for finishes of integrity

R-B-H

Dispersions

DIVISION OF INTERCHEMICAL CORPORATION
DISPERSION TECHNICIANS
BOUND BROOK, NEW JERSEY

Pigment dispersions in nitrocellulose; ethyl cellulose; urea formaldehyde; vinyl and alkyd resins; chlorinated rubber and other plastic binders.

R-B-H IS A TRADE-MARK OF INTERCHEMICAL CORPORATION

New Columbian Dept.

The sales organization of Binney & Smith Inc., which has been handling sales of Columbian Carbon Co. pigments, dispersions and other industrial raw materials, has been transferred to Columbian. The announcement was made jointly by Carl E. Kayser, President of Columbian Carbon and Allan F. Kitchel, President of Binney & Smith.

Columbian's new department will be organized by the transfer of the personnel employed by Binney & Smith in the distribution of these products.

Ethylene Glycol Diacetate

A new process developed by the Chemical Division of Celanese Corporation of America has enabled economical production of ethylene glycol diacetate, it was announced by R. W. KixMiller, Vice President in charge of the Chemical Division.

Volume production has been started at the Bishop, Texas, plant and a favorable price structure has been established for ethylene glycol diacetate for many uses.

ACRYLIC MONOMERS

(From page 45)

fume resistant enamels, vehicles for luminescent pigments and for flexographic printing inks.

Copolymers

The methacrylate monomers may also be copolymerized with drying oils for the manufacture of methacrylated alkyd resins. Methyl methacrylate is the most useful monomer here, because of its lower price and greater hardness compared with the higher methacrylates, although there are special applications where the additional

flexibility, higher gloss and better solubility of butyl methacrylate may be desirable. There is a wide difference between the reactivity of methyl methacrylate and a drying oil in their copolymerization, and there is some question as to whether a true copolymerization occurs at all. Drying oils of the conjugated type such as Chinawood oil and dehydrated castor oil copolymerize more readily than the less reactive linseed and soybean oils, although the latter can be used. Most of the available oil-soluble peroxide catalysts are suitable for use, and selection of the catalyst will depend on the balancing of ef-

fectiveness and economics. The most active peroxides are usually the most expensive ones. For example, in the series t-butyl perbenzoate, benzoyl peroxide, cumene hydroperoxide, activity and effectiveness have been found to decrease in the order given. However, price also decreases in the order given. While catalyst cost is often not too important, it may be in this application because larger than normal quantities of catalyst are usually required, sometimes as high as 5% of the weight of methyl methacrylate monomer. It has been found best to add the catalyst incrementally during the copolymerization. Other factors, such as solvent dilution and the presence of chain transfer agents, have been found to have a marked effect on the properties of the final product.

The methacrylated alkyds are featured by very rapid drying, whether air dried or baked. For example, a methacrylated alkyd has been described which dried dust-free in 10-15 minutes at room temperature and tack-free in 3-4 hours. An outstanding property of methacrylated alkyds is their excellent compatibility with pigments and with a wide variety of other resins, including urea, melamine, vinyls, nitrocellulose, etc. Coatings formulated with methacrylated alkyds also have outstanding toughness and resistance to aging and weathering, excellent adhesion, and very good alkali resistance. The methacrylated alkyds are particularly good vehicles for metal decorating of cans and for other metal coating applications.

Glacial methacrylic acid may also be used in the production of coating vehicles. This acid, which sells for 55c per lb. in drum quantities, can be used in emulsion polymers for increasing adhesion of the polymer and also for increasing the mechanical stability of the latex; disadvantages in the use of methacrylic acid are a loss of water resistance and a thickening effect when it is neutralized. In solution polymers, methacrylic acid may be even more useful than in emulsion polymers for increasing adhesion since water resistance is usually less of a problem.



... then make a trial run with

Neville Resins

SUPERIOR QUALITY EXTERIOR ALUMINUM PAINT VEHICLE

Gallons	Pounds		VEHICLE CONSTANTS	
	100	R-11 NEVILLE RESIN	Solids	50%
40	324	OKO Linseed Oil, M2.5	Viscosity (Gardner)	B-C
11.5	84	2-50-W HI-FLASH SOLVENT	Color (Gardner)	12-14
53	340	Mineral Spirits	Acid Number (on solids) . .	3 Maximum
	2.7	6% Cobalt Naphthenate	Set-to-touch	3-4 Hours
114	850.7		Dry	18 Hours

Method of Preparation: Melt and mix together R-11 Neville Resin and OKO Linseed Oil at 350°F. Reduce and add drier.

* You get all the extras—acid, water, alkali resistance with outstanding leafing and durability.

NEVILLE CHEMICAL CO. Pittsburgh 25, Pa.

P-60

Plants at Neville Island, Pa. and Anaheim, Cal.

HOW YOU CAN GET RID OF **FOAM**



WITH LESS THAN 1% ADDITION OF **TRIBUTYL PHOSPHATE** TO YOUR PRESENT FORMULATION

In Rubber Base Paints the effectiveness of Tributyl Phosphate as an anti-foam agent has been proved by the manufacturers who now use it in their formulations. This property of reducing foam is retained in paints throughout manufacturing, packaging and final application. Also in the final application a marked improvement in leveling properties and brushability is imparted to the material by Tributyl Phosphate. Only 1% or less of the total weight is usually required to give adequate anti-foaming protection.

In Paper Coating Compounds Tributyl Phosphate is efficient in eliminating foam. The finished product has no residual odor and very low retention as a result of adding Tributyl Phosphate.

In Water Adhesives, inks, casein solutions, textile sizes, detergent solutions, etc., Tributyl Phosphate also acts as an anti-foam agent.

As a High Boiling Solvent Tributyl Phosphate is used in preparing concentrates of weed killers. In lithographic inks, because of its high solvency for most natural gums and synthetic resins, it is an excellent solvent for components normally difficult to put into solution.

Other Uses for Tributyl Phosphate are as a plasticizer, as a wetting agent for pigments and to increase adhesion to metal and plastic surfaces.

Send today for technical data and samples of Tributyl Phosphate. No obligation.

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☐ Send technical literature. ☐ Send sample of Tributyl Phosphate.

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COMPANY _____

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CITY _____

STATE _____

EFFECT OF KAOLINITE

(From page 31)

tance was affected only slightly by changes in pigment volume concentration below the Critical Pigment Volume Concentration. Above this point, wet abrasion resistance decreased sharply.

6. Within experimental error, stain removal was not affected by Kaolinite particle size.

Stain removal became progressively more difficult as pigment volume concentration increased.

7. Within experimental error, the ability of polyvinyl acetate emulsion paints to form continuous films at 40° F. was not affected by Kaolinite particle size.

Within experimental error, ability of polyvinyl acetate paints to form films at 40° F. was not affected by changes in pigment volume concentration below the Critical Pigment Volume Concentration. Above the Critical Pigment Volume Concentration a sharp decrease in the ability to form films resistant to wet abrasion was noted.

Lowering the temperature at which film formation took place apparently lowered the Critical Pigment Volume Concentration of the system.

8. Water spotting characteristics of polyvinyl acetate emulsion paints were not affected by Kaolinite particle size.

9. The effect of Kaolinite particle size on the application properties of polyvinyl acetate emulsion paints was difficult to evaluate due to the fact that the paints made from the large particle size Kaolinites were lower in viscosity than those made from the fine particle size Kaolinites. Ignoring the possible effect of viscosity, the coarse particle size Kaolinites seemed to impart slightly better application properties.

10. Colored pigment "flocculation" in polyvinyl acetate emulsion paints did not seem to be affected by Kaolinite particle size.

11. In many instances, the magnitude of the effect of Kaolinite particle size and pigment volume concentration on paint properties was such that a reduction in raw material costs, an improvement in quality, or both, appeared to be possible through the judicious use of the proper grade.

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Acknowledgment

The author wishes to express his appreciation to John Lane and James Furey of the Georgia Kaolin Company Research Laboratory, and Edward Scholl and Leon Gilchrist of Esco Laboratories for much of the data presented herein; to Dr. A. Busell of the Air Reduction Company for his helpful review; and to the State Engineering Experiment Station at the Georgia Institute of Technology for the preparation of the electronmicrographs not otherwise credited.

NEWS



C. C. McInnes

New Chicago Officers

Clyde C. McInnes of American Mineral Spirits Co. has been elected President of The Chicago Paint, Varnish & Lacquer Association for the coming year.

Serving with him will be A. P. Stresen Reuter as Treasurer, N. E. Olson as Secretary, and the retiring President, Linus O. Smith, as Vice President.

Editors Tour Labs At Interchemical Corp.

Editors and reporters for trade publications toured the central research laboratories of Interchemical Corp., New York City, June 17 at an "open house" designed to acquaint them with the interrelated research conducted there for the corporation's ten divisions.

President Herbert B. Woodman spoke briefly on the typical products of industries served by Interchemical. They range all the way from wrappers and labels to printed and dyed textiles and to industrial machinery and equipment.

Following a tour of the labs and a luncheon, Norman Cassel, Vice President in charge of research spoke about the company's technical attack based on interrelated research and experience in a highly diversified field.

A high speed movie breaking down the action of printing inks and roller coatings closed the program.

New Nat. Distributors Div.

Dr. Robert E. Hulse, Vice-President and Director of National Distillers Products Corp., has announced that all chemical operations of the company will be conducted by the U. S. Industrial Chemicals Co. Div. of the Corporation.

In addition to Dr. Hulse, who is General Manager of the new U. S. Industrial Chemicals Co. Division, the officers are: W. P. Marsh, Jr., Assistant General Manager and Vice-President of National Distillers; L. A. Keane, U. S. I. Vice-President and Director of Sales; R. H. Cornwell, Director of Production; S. Schott, Director of Research; F. Olmsted, Director

of Development; J. S. Atwood, Manager of Engineering Development; and E. A. Yeager, Manager of Legal and Contracts.

Latex Liked In Australia

Latex base paints are proving as popular with home owners in Australia as they are in this country, reports J. M. Keddie, Managing Director of Glazebrooks Paints & Chemicals, Ltd., a leading Australian paint manufacturing firm.

A recent visitor to the United States, Mr. Keddie said his firm has achieved national distribution for latex base paints only 19 months after adding them to the product line.

Spencer Kellogg's

Kellin Esskol Kel-X-L

**Chemically-treated
Linseed Oils
for better quality
Varnishes at
Lower Cost**



SPENCER KELLOGG AND SONS, INC.

BUFFALO 5, N. Y.

Ask the Kellogg Technical Service Dept. to bring you up-to-date on modified Pease oil formulations.

**Remove "Fish Eyes", Skins,
Incidental Solids and
Semi-Solids from Varnish
and Lacquer with**

SPARKLER FILTERS

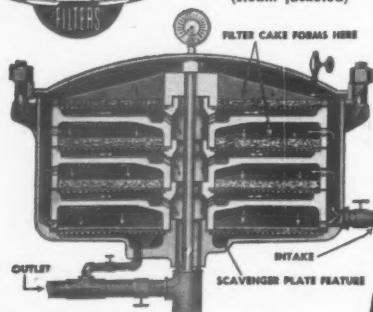
Many varnish makers now use Sparkler Filters to clarify varnish, lacquers, and other clear liquids. The brilliance and polish obtained by filtering with Sparkler Filters is far superior to results obtained with other methods of clarifying paint products.

Our engineers are ready to give personal attention to your problems.

Write Mr. W. J. Kracklauer.



Model 18-S-12
Varnish Filter
(steam jacketed)



SPARKLER

**MANUFACTURING COMPANY
MUNDELFIN, ILL.**

Makers of fine filtration installations for industrial use for over a quarter of a century

MICA

**WATERGROUND
AND MICRO**

**FOR PVA
ACRYLIC EMULSIONS
LATEX AND MODIFIED LATEX PAINTS**

Excellent for a well-knit, durable film . . . less penetration, running and sagging . . . better adhesion and bridging . . . more washable and longer weathering.

Our finest Micro Mica is an excellent flattening agent for this type of paint.

The English Mica Co.

STERLING BUILDING, STAMFORD, CONN.

Vic L. Sinisi Organizes Florida Sales Firm

Vic L. Sinisi has resigned as General Sales Manager of the A. C. Horn Division of Sun Chemical Corp. to organize his own manufacturers' representative firm in Mt. Dora, Fla.

Mr. Sinisi, widely known in the paint and waterproofing industry,

joined A. C. Horn Co. twenty years ago and for the past eight years directed its marketing activities.

Active in many sales and trade organizations, including the N. Y. Sales Executives Club, he has been group chairman of the N. Y. Paint, Varnish and Lacquer Ass'n and a leading figure in maintenance, trade sales, masonry and caulking groups.

TECHNICAL Bulletins

COLOR HARMONY GUIDE

The "Heritage" color harmony guide has been developed by the Borgers, color and style consultants to Modes & Fabrics, Industrial Designers, 150 E. 35 St., New York 16, N. Y. It is claimed to be the only color guide to show the most accepted colors and combinations for home products, especially the kitchen and bathroom.

The guide was developed to assist manufacturers of all products such as appliances, furnishings, cabinets, furniture, paints, housewares, floor and wall coverings, fixtures, etc. to eliminate the need for a large range of colors, which only tend to confuse the public. It will assist the manufacturer to choose a short line of the best colors for his products, and enable him to demonstrate that his colors are fashion right and will harmonize with the widest range of colors found in the kitchens and bathrooms all over the country.

The guide is arranged in the form of a 17" x 22" chart for easy reference. Cost to manufacturers is \$15.

PACKAGING ADHESIVES

Paisley Products, Inc., 630 W. 51 St., New York 19, N. Y., offers a 4-page illustrated folder describing six classifications of adhesives for the packaging field.

Subjects include carton sealing glues, case seal glues, bottle label glues, round container labeling glues, resin emulsion adhesives and wrapping and bundling adhesives. The folder also describes technical service bulletins which cover these subjects in even greater detail, all of which are available free.

METAL CONTAINERS

A two color 4-page folder, Bulletin 57A, illustrating and describing the company's wide range of sizes and styles of metal containers has been published by George D. Ellis & Sons, Inc., American & Luzerne Streets, Philadelphia 40, Pa.

ISOPHORONE

An 8-page technical bulletin, F 5897A, on isophorone is available from Carbide and Carbon Chemicals Co., 30 E. 42 St., New York 17, N. Y.

Physical properties, specifications, shipping data, general solvent properties, constant-boiling mixtures, physiological properties, and uses are discussed.

PROPYLENE GLYCOL

Propylene glycol is described in a 16-page data folder F-8738, released by Carbide and Carbon Chemicals Co., 30 E. 42 St. New York 17, N. Y.

It presents data on physical and physiological properties, specifications, shipping containers, constant-boiling mixtures, solubilities, and applications. For convenience, the data folder has eight easy-to-read charts showing physical properties of interest to users of propylene glycol.

METHYL ISOBUTYL KETONE

Carbide and Carbon Chemicals Co., 30 E. 42 St., New York 17, N. Y. has published a 4-page bulletin F-8637, on methyl isobutyl ketone. Applications, physical properties, specifications, shipping data, general solvent properties, constant-boiling mixtures, and physiological properties are discussed.

CONVERSION FACTORS

A 16-page catalog, whose inside cover features a list of conversion factors, lists new and different items in addition to the company's standard line of lockers, ladders, steel shelving and storage and maintenance equipment for industrial and institutional uses. Write on company letterhead to Precision Equipment Co., 3666 Milwaukee Ave., Chicago 41, Ill.

RECORDERS

Bulletin F 5608-1 describes Wheelco Indicating and Recording Instruments. They are designed to provide accurate measurement, indication, and permanent record when applied to electrical variables such as voltage and amperage as used in industrial processing, laboratories, and generating stations. Barber-Colman Co., Wheelco Instruments Div., Rockford, Ill.

OLEIC ACIDS

A 20-page comprehensive booklet, "Emersol Oleic Acids," covers the various means of evaluation with emphasis on end-product performance. This includes a discussion of the interpretation of analytical tests normally performed on oleic acid, along with a complete description of the line of Emersol oleic acids.

Also included is a section on handling oleic acid, an end-product selection chart, and a series of charts on such properties as viscosity, specific gravity, etc.

Copies are available from Emery Industries, Inc., Dept. 5, Carew Tower, Cincinnati 2, Ohio.

ORGANIC CHEMICALS

A 6-page bulletin lists a selected group of synthetic organic and pharmaceutical chemicals produced by the Organic Chemical Dept., National Aniline Div., Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y.

Structural formulas, descriptions and properties of 51 chemicals and pharmaceutical intermediates are shown in simple, graphic form. The bulletin also lists National's principal quantity-production organic chemicals, as well as its line of Certified Food, Drug and Cosmetic Colors and complete line of "Nacconol" Synthetic Detergents.

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COATINGS

A one-page technical data sheet on "Flame Retardant Chlorowax—Gilsonite Coatings" has been issued by the Chlorinated Products Division of Diamond Alkali Co., 300 Union Commerce Building, Cleveland 14, Ohio.

Six typical formulations utilizing two company chlorinated paraffins are given for use in producing flame retardant coatings, mastics, and bituminous sealing compounds made with either cut-back asphalts or natural asphaltic materials such as gilsonite.

STAINLESS STEEL VALVES

A 12-page technical data booklet covers stainless steel valve design, selection, maintenance and repair. Printed to form part of the forthcoming new catalog, the technical section is being offered separately on request. Photographs, engineering drawings and cut-aways combine to make this a very complete, yet condensed, discussion of stainless valves.

Requests for "Valve Technical Data" should be made to the Public Relations Div., Cooper Alloy Corp., Hillside, N. J.

RECORDING CHARTS

Methods and controls used in producing recording instrument charts are outlined in a 14-page two color bulletin released by The Bristol Co., Waterbury 20, Conn.

The bulletin shows some of the tests and quality control procedures which go into the manufacture of charts for its own re-

cording and controlling instruments as well as for specialty instruments for other manufacturers. A sample sheet of chart paper is inserted in each bulletin.

PAINT SYSTEMS

The second of two volumes of the "Steel Structures Painting Manual" has been published by the Steel Structures Painting Council, 4400 Fifth Ave., Pittsburgh 13, Pa.

The new volume, called "Systems and Specifications," has been edited by Dr. Joseph Bigos, Senior Fellow of Mellon Institute, and Director of Research of the Steel Structures Painting Council.

It contains very specific recommendations on painting a tremendous variety of steel structures and surfaces in various exposures. Complete guides and indexes make it easy for engineers, architects, fabricators, and maintenance supervisors to quickly, easily, and correctly specify complete paint jobs for new work or maintenance painting. In addition, it includes complete specifications for surface preparation, pretreatment, paint application, paints, and paint systems.

"Systems and Specifications" consists of 300 pages, 8½" x 11", case bound in leatherette with hard covers. Copies cost \$6.00 each, postage paid.

AEROSOL REGULATIONS

A newly-revised digest of Federal and municipal regulations covering sale and shipment of pressurized aerosol products has been pre-

pared by the Chemical Specialties Manufacturers' Association as a guide to manufacturers and marketers in complying with safe practice rules.

Price of the digest, punched for insertion in standard 5-ring, 6 by 9-inch binders, is \$6. Orders should be addressed to the Chemical Specialties Manufacturers' Assn., 50 East 41 St., New York 17, N. Y.

AEROSOLS

A 52-page compilation of industry-recommended manufacturing and sales practices is offered as a guide to production of top-quality aerosol products.

Entitled, "Manual for Vendors and Fillers of Aerosols and Pressurized Packages," it includes sections on labeling, premarketing product checks, filler safety tips, and postal regulations on mailing of pressurized packages. Separate sections are devoted to an illustrated explanation of laboratory tests for flammability and to recommended minimum fills for various sizes of push-button containers.

Copies, punched for insertion in standard three-ring binders, are available for 50 cents from the Chemical Specialties Manufacturers' Assoc., 50 E. 41 St., New York 17, N. Y.

SILICONE DEFOAMERS

Properties and performance of company's silicone defoamers are detailed in a 4-page illustrated brochure. Special attention is given to Antifoam AF Emulsion. Its parent material, the original Antifoam A Compound, is also described. Suggested concentrations, dispersing media and application methods are discussed, along with actual working examples in fields ranging from food processing to metal-working. Dow-Corning Corp., Midland, Mich.

ROSIN

National Rosin Oil Products, Inc., 270 Avenue of the Americas, New York 20, N. Y. has published an 8-page booklet on "Galex," a stabilized non-oxidating rosin which is specifically compounded for all uses where ordinary rosin is detrimental due to oxidation. The brochure gives typical properties, and tells of products' many uses.

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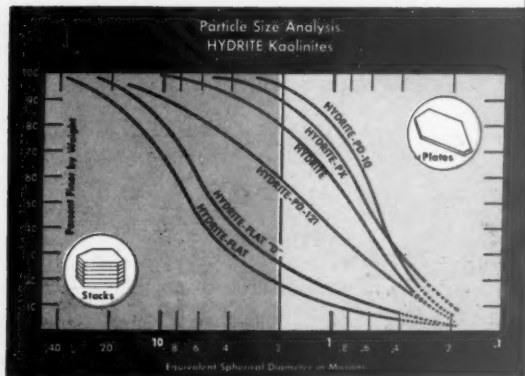
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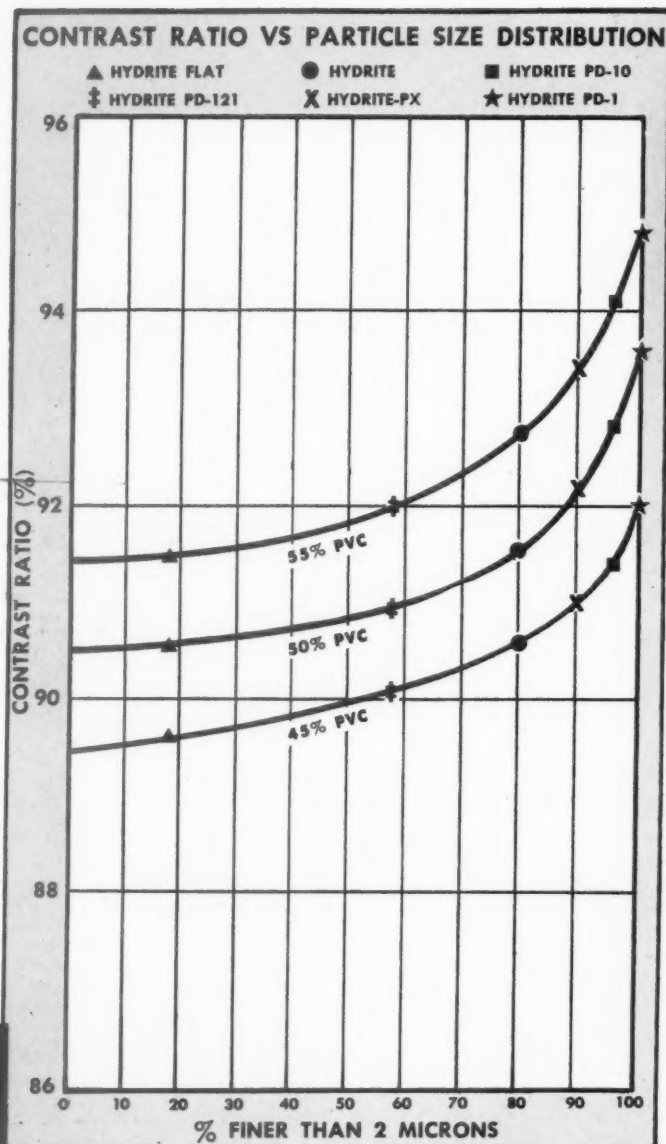
MATERIALS	Pounds per 100 gallons of		
	45% PVC	50% PVC	55% PVC
Titanium calcium pigment	550	475	400
Kaolinite	140	215	290
Litharge	1.4	1.4	1.4
Aluminum stearate (high acid)	3.5	3.5	3.5
Bodied Castor and Linseed oils (71%)	298	250	210
Ester Gum (60%—in mineral spirits)	98	82	70
Kerosene	23	23	23
Mineral Spirits (155-200°C.)	140	180	220
Cobalt naphthenate dryer (6%)	2.4	2	1.7
	1256	1232	1220

Technical Service Bulletin TSBH-13, giving further details, is being prepared.

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